



REPLY TO
ATTENTION OF

DEPARTMENT OF DEFENSE
ARMED FORCES INSTITUTE OF PATHOLOGY
WASHINGTON, DC 20306-6000

Christy -
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material +
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January 17, 1995

Dr. Julia A. King
Principal Investigator
J. Patterson Park and Museum
10515 Mackall Road
St. Leonard, MD 20685-2433

Dear Julia,

With the holidays now over, I had a chance to finish looking through the *Medical and Surgical History of the War of the Rebellion* (reprinted by Broadfoot as the *Medical and Surgical History of the Civil War*) for information on Point Lookout.

I have enclosed two copies. The first is a description of the hospital which includes general information on military hospitals, equipment, etc. The second copy discusses disease among the Confederate prisoners at the prison camp. Citing references on this material can be a bit confusing, so give me a call when you need them.

I hope all else is well. The fieldwork has started at this point. I'm sure you are happy about the weather; no repeat of last year yet!

Please let me know if we can be of further assistance.

Sincerely,

Paul S. Sledzik, MS
Curator, NMHM/AFIP

THE
MEDICAL AND SURGICAL
HISTORY

OF THE
CIVIL WAR

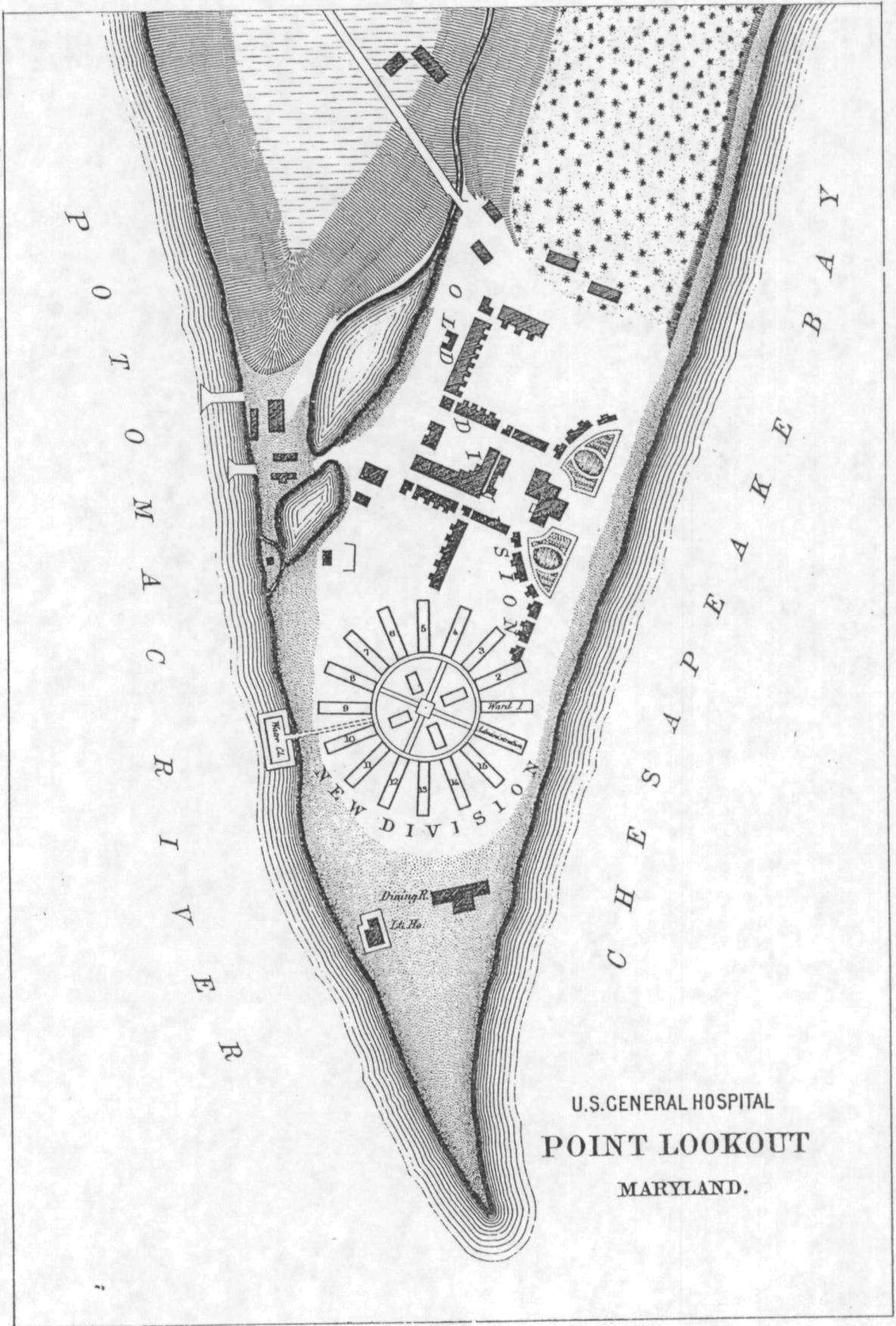
~~VOLUME V~~

James I. Robertson, Jr. editor

[Formerly entitled THE MEDICAL AND SURGICAL
HISTORY OF THE WAR OF THE REBELLION. (1861-65.)]
(1883)

OTIS HISTORICAL ARCHIVES
NATIONAL MUSEUM OF HEALTH AND MEDICINE
ARMED FORCES INSTITUTE OF PATHOLOGY

BROADFOOT PUBLISHING COMPANY
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U.S. GENERAL HOSPITAL
POINT LOOKOUT
MARYLAND.



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and invite them, especially of underclothing and hospital stores. This seems to be the more necessary, as at present there is no hospital fund with which to purchase extras.

The subject of allowing the prisoners to bathe unfortunately escaped my attention. I was informed, however, by one of the officers of the post, that it had not been permitted for the officers, and the condition of the men certainly indicated that they have not enjoyed any greater privileges in this respect. If occasional bathing could not only be allowed but compelled, it would of course contribute materially to the health of the prisoners, and there seems to be no good reason why, under proper and sufficient regulations, this could not safely be provided for."

PRISON-CAMP AND HOSPITAL AT POINT LOOKOUT, MARYLAND.—This camp was established in August, 1863, on the eastern side of the point at some distance north of the site of the Hammond General Hospital. In his report for July of that year Medical Inspector General J. K. BARNES, U. S. Army, mentioned the proposed settlement of ten thousand prisoners in the vicinity of the hospital, and called the attention of the Surgeon General to the fact that at least 700 of the beds of this establishment would be required for the use of the sick among this number of prisoners. The point was sandy and sparsely dotted with shrubby vegetation. The site was considered healthy. The prison-area was surrounded on three sides by a stockade; on the east side it opened on Chesapeake Bay. One or two gun-boats guarded the water-front of the camp. The prisoners were sheltered in Sibley and A tents, which were pitched in regular lines separated by well-graded streets. One division of the prisoners occupied cracker-box huts, built by themselves out of such timber as was obtainable on the point and shingle-like fragments of the empty hard-bread boxes. At first the sick were sent to the Hammond Hospital, but after a time a prison hospital, in which cases of a less severe character were treated, was established within the stockade. The water-supply was from a number of wells which yielded each from 500 to 1,000 gallons daily, but diarrhoea was sometimes attributed to its use. The soil of the camp-site was kept unusually free from excremental taint, as the sinks were built over the waters of the bay, which promptly carried off the deposited filth.

The first, and perhaps the only, report of special interest from this camp contains a protest against overcrowding. It was written by Surgeon JAS. H. THOMPSON, U. S. Vols., Surgeon in charge, June 30, 1864: "Several thousand prisoners captured during the present campaign have been received into camp during the month of June. Many of these were suffering from exhaustion and diseases incident to an active campaign. It will be perceived by a reference to the mortuary report that most of the deaths during the month occurred among these new arrivals. The types of all diseases occurring in camp have been more aggravated than during previous months. Wounds, though generally progressing favorably, have in several instances proved troublesome from gangrene and proneness to secondary hæmorrhages. Only one case of variola has occurred and fifty-five cases of measles; the latter disease is increasing, the former nearly extinct. Requisition has been made for vaccine lymph to protect the new arrivals.

Subjoined is an extract from a report forwarded to the commanding officer of the Post June 23, 1864:—

"I have the honor to call the attention of the commanding officer to the already crowded condition of the prisoners' camp at this post, and as sanitary officer of the camp to respectfully protest against the reception of additional numbers of prisoners, there being now fully fourteen thousand persons within the camp, and nearly twenty thousand on the point, including the U. S. Hammond General Hospital with one thousand three hundred wounded men, the contraband camp of indefinite numbers, the Quartermaster's department and troops of the garrison. In addition to these are the Quartermaster's stables with, I suppose, two hundred and fifty horses and mules.

The reasons why I am urged to make this protest are:

1st. The limited area of the camp and of the occupied surface of the point.
2d. The already insufficient and injurious quality of the water. According to the results of analysis the water of some of the wells is unfit for use, and to this I attribute largely the increased prevalence and fatality of disease during the past month.

3d. Though the police of the camp is, and has been for several months past, most excellent, still every precaution against epidemic disease, with this over-crowding of the camp not only continued but rumor says yet to be increased, will, I fear, prove futile, and we may see ere the summer is past an epidemic that will decimate not only the ranks of the prisoners, but affect alike all the inhabitants of the point,—

I therefore recommend to the consideration of the commanding officer:

- 1st. That no greater number of prisoners or troops than at present occupy the ground be allowed upon the point.
- 2d. That condensers be at once put up to furnish a sufficient quantity of pure water.
- 3d. The diminished issue of salt pork and the largely increased issue of fresh vegetables; this in consideration of the scorbutic tendency and character exhibited in the majority of diseases occurring in the camp.
- 4th. The immediate construction of barrack-hospitals for the accommodation of two hundred sick."

The condensers were not furnished, but to supply the increased necessity for water a number of new wells were dug. Free issues of vegetable food were made to the prisoners and a post-hospital of six wards was commenced outside the stockade. Large numbers of the prisoners were employed under guard on this and other work in the vicinity of the camp. The details for such duty were eagerly coveted as furnishing occupation and change of scene, and enabling the laborer to extra rations or special issues of tobacco, as might be desired.

By orders dated August 31, 1864, from headquarters of the military district in which the camp was situated, the provost marshal was charged with the duty of inspecting the camp and hospital of the prisoners of war. Daily inspections were enjoined, and weekly reports required, covering such points as personal cleanliness, clothing and bedding, quarters, kitchen and messing, police, sinks and drainage, hospital wards and attendants, etc.

From a perusal of these reports, now on file in the office of the Adjutant General of the Army, it is evident that the prison-camps were in better condition than this depot at Point Lookout. During the warm months the prisoners were required to bathe and change their underclothing once a week. In fact, many took frequent advantage

of the general permission to bathe in the waters of Chesapeake Bay. During the winter the facilities for personal cleanliness were not so satisfactory. The water-supply from wells, twelve to twenty feet deep, was at first sufficient for all the needs of the camp; but as fresh commitments were made new wells had to be dug, and on a few occasions of large and unexpected increments of the population, as for instance, on April 16, 1865, when over 5,000 were received, precautions had to be taken against waste of water until new sources of supply became available.

Besides the ordinary body-clothing, every prisoner was furnished with an overcoat and blanket and a change of underclothing. On each of the weekly reports are noted the number of prisoners received and the articles of clothing, etc., issued. Sometimes, when a large commitment was made, the clothing on hand was insufficient for the supply of the new arrivals. Thus, although during the week ending October 16, 1864, 1,000 overcoats, 1,800 blankets, 402 blouses, 202 pairs of drawers, 168 pants, 650 shirts, 650 pairs of shoes and 380 pairs of socks were issued, it is stated that to make the prisoners comfortable and provide each with a blanket, further issues of 4,000 shirts, 3,000 pants, 2,500 pairs of shoes and 1,500 blankets were imperatively required. Requisitions for needful articles were as a rule promptly honored. The quartermaster had on hand at this time a large number of pants, but as they were of the regulation blue color it was deemed inadvisable to distribute them. The similarity in the dress of the guard and prisoners would have facilitated escape, particularly as over 900 of the prisoners were daily employed on the public works outside the stockade. During the winter some of the prisoners received extra articles of clothing from their friends in the south, and on February 19, 1864, twelve bales of blankets and one case of socks arrived from New York through the Confederate Agency for the supply of prisoners. These, and subsequent supplies from the same source, were distributed by a committee of prisoners to whom this duty was assigned. The report of March 5 states that two other lots of clothing had been received from General BRALE, the rebel agent in New York, and that of March 26 has the further statement that "the supplies of clothing furnished by the Rebel authorities are quite liberal and timely."

The quarters consisted of Sibley tents, twelve men to a tent, and A tents with four men in each. No description is given of the character of the make-shift shelters constructed of cracker-boxes and fragments of old lumber, but as permission to build was regarded as a favor, it seems as if these compared favorably in point of comfort with the tents, one-third of which, towards the end of the occupation of the camp, were reported as unserviceable.

Six kitchens, with large mess-halls attached, were used in the preparation and consumption of food. The rations were uniformly of good quality and well cooked. At the time these inspections were instituted vegetables were issued freely to counteract the tendency to scorbutic manifestations among the prisoners, and these issues appear to have been kept up to the end.

The camp was preserved in an excellent state of police. All cleaning was completed before 9 A. M., at which time the prisoners formed line in their respective divisions and were inspected by the provost marshal. To supplement the sinks, boxes were in use for the convenience of the prisoners during the night. These were removed in the early morning by the police parties.

At the suggestion of Surgeon THOMPSON nine hospital wards of sixty beds each were built outside the stockade; they were reported finished on October 30. There were in addition one hundred and twenty hospital tents floored with lumber and fitted up with hospital beds. Wards were set apart for the treatment of measles, small-pox and erysipelas. These, with a full staff of medical officers and attendants and ample supplies of medicines and medical comforts, were provided for the cure of the prisoners when sick and as a relief to the wards of the Hammond Hospital, which, however, continued to keep its doors open for the reception of prisoners when, as was usually the case, the prison-hospital failed to accommodate their number. On December 18 Surgeon THOMPSON insisted on the necessity for increased hospital facilities, but no action was taken on this recommendation as the Hammond Hospital at all times acted the part of a prison-hospital.

Occasional remarks on the reports of the provost marshal by Brigadier General JAMES BURNES, commanding the prison-camp, testify to the existence of a uniformly satisfactory condition of affairs. "I have," he says on the report of November 6, "nothing particular to add to the statement of the inspecting officer except my general testimony to the kindness manifested by the different officers connected with the duties of the government and discipline of the camp. Fortunately the general good conduct of the prisoners renders unnecessary any act of severity towards them, and is at the same time sufficient testimony as to the mode of their treatment."

The following extract from a report of Assistant Surgeon J. C. MCKEE, U. S. Army, dated July 1, 1862, shows the insanitary conditions at one of the minor or temporary prison-camps—that established near Springfield, Illinois:

"CAMP BUTLER, ILLINOIS, is situated on the Great Western Railroad, six miles from the town of Springfield. The camp is established on a rather high and rolling piece of ground, surrounded by a high board fence, enclosing some fifteen acres of land. It was originally intended as a camp of instruction for volunteers. The barracks were built for two regiments. They are mere shells, single boards forming the sides and roofs; the sides very low, about eight feet in height; the roofs covered with tarred paper. Erected by contract they afford protection neither from storms nor heat. During this month the thermometer has been steady at 102° for days in my own room. The effect of such intense and continued heat on the sick and well in these miserably constructed barracks has been prostrating in the extreme. The prisoners of war, over two thousand in number, occupy the rows of barracks on the right; in front of these there are two rows of tents on a main street also occupied by them. Four of the barracks in this row are used as hospitals, part of another as a drug store. A line of sentinels surrounds all, leaving ample room for the prisoners to exercise; but they are generally indifferent to this and to their personal cleanliness. Two other hospitals outside of these lines are now allotted to convalescents on account of the shade. On my arrival here in May I found the hospitals, six in number, in a miserable sanitary condition. No one had taken the authority or trouble to better this. The floors were filthy; deodorizing agents were not thought of; slops and

filth were thrown indiscriminately around. The sick were crowded in wooden bunks; some on the floor, many without blankets, and nearly all without straw, either new or old. No attention was paid to ventilation or drainage. The stench of the wards was horrid and sickening. Food was abundant but badly prepared; medicines were deficient. The stewards were ignorant and negligent of their business; the nurses and cooks insubordinate and inattentive to the wants of their sick companions. The condition of the prisoners, many of whom had been broken down in service prior to their capture, opened a favorable and unlimited field for the development of low types of disease, and accordingly typhus and typhoid fevers, pneumonia, erysipelas, etc., raged with violence and great fatality.

To carry out my plans of improvement required much explanation and persuasion. I was successful in what I undertook for the comfort of these unfortunate sick. Floors were scrubbed; lime applied freely on the walls and floors; ventilation and drainage attended to. A fever hospital (making seven) was established; another hospital was used for pneumonia; another for erysipelas. The surgeons (prisoners of war) were assigned to their own hospitals; stewards and nurses were encouraged to emulate each other in the cleanliness of their wards—all with the happiest effects. Cooks were supplied with necessary kitchen furniture; barrels were procured for slops; water was furnished in abundance for the sick; wards were limited to the number of 30 patients. The hospital fund procured many necessary articles such as ice. The Medical Purveyor at Chicago sent me a full supply, according to the Standard Supply Table, for six months. A drug store, under an excellent druggist, was established. A quantity, sufficient for a change, of shirts, drawers and sheets was obtained from the Quartermaster; fresh straw and bed-sacks were also secured. Under these changes the difference in the mortality of my hospitals was remarkable and exceedingly gratifying. During the month of May one hundred and twenty-three died, whilst in June only thirty died.

Of twenty-four cases of camp fevers (typhus) four died; of fourteen cases of typhoid two died; of thirty-three cases of common continued fever two died. In two cases I was unable to diagnose whether they were typhus or typhoid until after a *post-mortem* examination. The former disease was sudden in its attacks; in two cases the patients died on the third day. Ammonia, tonics and stimulants had to be used in large quantities. One case (I thought of fatal relapse) was saved by blistering the whole length of the spine with ammonia and mustard. Typhoid or enteric fever was treated much in the same way, with the addition of oil of turpentine, of which I cannot speak too highly. Quinia had to be employed freely among these men in nearly all diseases. They generally come from miasmatic districts. I can speak with the highest satisfaction of the use of muriated tincture of iron in the treatment of erysipelas; alternated with quinia it controlled the disease in all its forms. I found local applications, as of iodine and nitrate of silver, unsatisfactory in their results, not controlling the spread of the disease. I abandoned their use and applied emulsion of flaxseed, saving pain and trouble to my patients. The two fatal cases reported were complicated with other diseases."

Having obtained from this investigation of the reports of the medical inspectors some idea of the unhygienic surroundings of the prisoners at these depôts, the following table, contrasting their mortality-rates from all diseases and from certain prominent classes of disease, may be consulted with advantage:

TABLE XXI.

Comparing the Annual Sickness and Mortality from certain Specified Diseases at the Principal Depôts for Rebel prisoners.

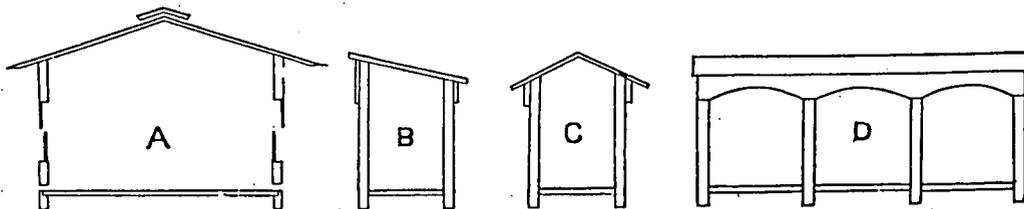
NAME OF PRISON.	Camp Douglas, Ill.	Alton, Ill.	Rock Island, Ill.	Camp Morton, Ind.	Johnson's Island, Ohio.	Camp Chase, Ohio.	Elmira, New York.	Fort Delaware, Del.	Point Lookout, Md.	All these depôts.
Annual sick-rate per 1,000 strength . . .	3,757	10,072	1,575	1,485	811	4,735	1,544	3,549	2,471	2,997.6
Annual death-rate from—										
Continued Fevers	19.2	24.5	6.4	7.0	5.9	10.4	21.2	12.7	12.3	13.6
Malarial Fevers	12.7	62.0	6.1	19.9	2.3	6.7	9.9	14.2	9.2	12.6
Eruptive Fevers	36.7	188.0	51.0	14.3	3.8	71.6	58.9	38.5	18.9	42.3
Diarrhoea and Dysentery	38.1	80.2	42.5	52.8	10.5	44.6	211.5	52.4	116.3	73.0
Scurvy	2.1	2.1	1.6	1.0	0.0	1.0	3.0	7.7	9.5	4.3
Pneumonia and Pleurisy	70.7	96.6	46.4	82.5	5.7	188.6	117.3	32.7	23.7	61.7
All diseases	214.5	509.4	186.1	196.8	35.4	343.2	444.1	179.1	206.6	230.4
Percentage of fatal cases	5.7	5.0	11.8	13.2	4.4	7.3	28.8	5.0	8.4	7.7
Annual death-rate from disease per 1,000 men admitted.	44.1	55.0	98.0	46.7	9.8	75.2	241.0	45.4	46.4	65.7

transversely into two by a median partition with folding-doors. Ventilation was by the ridge, air-shafts, ventilating-slides and the windows. Water was pumped from wells into a distributing-tank, but the supply was insufficient for use in the water-closets. Sliding-boxes, cleansed every twenty-four hours, were used in the closet at the end of each ward, and special ventilators were provided to facilitate the escape of foul air. Pipe-drains carried off waste-water. The situation and conveniences of the establishment are better shown by the illustration on page 941 than by a lengthened description. At one period as many as 312 regulation hospital-tents were pitched on the grounds of this hospital. They were arranged in thirteen divisions, six pavilions to a division and four tents to each pavilion, which, as every tent accommodated six men, added 1,872 beds to the capacity of the establishment.

LINCOLN HOSPITAL, WASHINGTON, D. C., was opened December, 1862, about a mile east of the Capitol, on an undulating plain declining gently toward the Eastern Branch of the Potomac. Its pavilions were arranged in two lines *en echelon*, forming a V, with the kitchens, etc., in the space subtended by the lines; each wing consisted of ten pavilions. They were 187×24×16 feet to the eaves and 20 to the ridge, but, unlike those at HAREWOOD, they were not divided into two by a transverse partition. Ventilation was by the ridge, air-shafts and box-channels leading from floor-inlets. Each was fitted for 62 patients. At the exterior or distal end of each ward were four rooms occupying 15 feet of the length of the building and used for baths, sinks, clothing and nurses. By their opposite or interior ends the wards were connected with each other and the other buildings of the hospital by means of a covered pathway bearing a railroad track 2 feet wide, which was used to convey box-cars laden with food from the main and extra kitchens to the wards. Tent-wards were used at this hospital, four tents usually forming a pavilion. At one time 100 tents were in use. The water-supply was raised from wells to a distributing reservoir, and waste-water carried off by drains as at HAREWOOD. This hospital was described and its plan figured in Circular No. 6, War Department, Surgeon General's Office, Washington, D. C., 1865,* and again in an article published in connection with the International Exhibition of 1876.†

The HAMMOND HOSPITAL, POINT LOOKOUT, Md., was situated on a low, level and narrow peninsula, washed on one side by the waters of Chesapeake Bay and on the other by the Potomac River. The grounds, although formerly those of a summer hotel, had few shade-trees and but little verdure, so that the reflected heat from the white sandy surface was frequently oppressive in summer notwithstanding the generally prevailing breezes from the sea. In addition, the water-supply was not of good quality. Moreover, although Point Lookout was easy of access by water, special and expensive arrangements had to be made with the steamers plying on the river and bay for the transportation of its supplies, as it was not one of their regular stopping places. In fact the site possessed so few natural advantages that Medical Inspector JOHN WILSON, U. S. Army, in one of his reports regretted that so fine a hospital, with so good an outfit, had been there constructed.

When first established this hospital consisted of a small two-story summer hotel, its outbuildings and a number of cottages and hospital-tents. The hotel fronted Chesapeake Bay and had a series of cottages north and south from it and disposed in lines on its flanks. Altogether there were about a hundred buildings on the point, which afforded accommodation for 700 patients with an average of about 700 cubic feet of space for each, together with large halls for kitchen and general dining-room, laundry, store-houses, barracks for the guard, etc. But in the summer of 1862 it was decided to erect special buildings on the pavilion system. It was intended that there should be sixteen frame huts radiating from a circular roofed passageway, one of these to be used as an administration building and fifteen as wards, and four huts in the interior of the circle to be used as kitchen, laundry, guard-house and knapsack-room. The corridor, open at the sides, was to measure 1,001 feet along its outer circumference, with intervals of 36 feet between the attachment of adjacent buildings. The main building, to be used as dispensary, officers' quarters, etc., was planned to be 175×50 feet, two stories high. The wards were to be 175×25 feet interior measurement, with 14 feet to the eaves and 18 to the plate; space at the corridor end to be partitioned off for a dining-room and at the free end for lavatories and water-closets; walls weather-boarded externally; the floor of planed stuff, raised from 18 to 24 inches from the ground in every part; the roof of boards covered with felting and coal-tar well sprinkled with white sand; the windows of two sashes, both movable, and ventilation effected by a gap 16 inches wide along the whole length of the ridge, covered by a ridge roof 3 feet wide on each side and elevated six inches in the clear from the main roof, and by well-openings 8 inches in height closed or regulated by a slide on the inside and situated near the floor-level between the windows.



A, Section of ward; B, Transverse section of circular covered way; C, Transverse section of straight covered ways crossing the circular area; D, Side view of covered way.

The wards were finished in 1862 and were immediately occupied as dormitories, but the buildings in the interior of the circle made very slow progress. Medical Inspector JOS. K. BARNES, U. S. Army, reported in May, 1863, that

* Reports on the Extent and Nature of the Materials available for the preparation of a Medical and Surgical History of the War of the Rebellion.

† Description of the Models of Hospitals, Philadelphia, 1876.

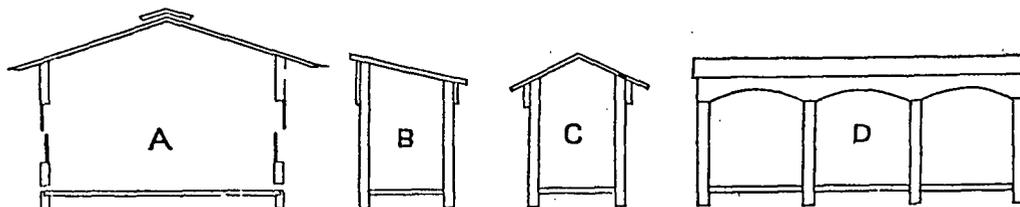
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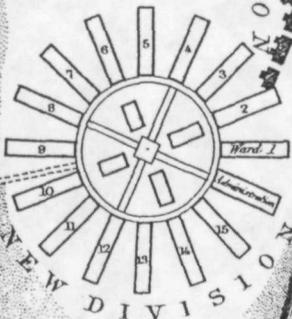
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POINT LOOKOUT
MARYLAND.

the modern part of this hospital was still incomplete in many of its essentials. "The kitchen, cooking-ranges and dining-halls are unfinished and the wards have neither lavatories nor bath-rooms, water-closets nor a water-supply. A capacious tank has been built, but the inflow and distributing pipes have not been put in and no work is being done on them, although the steam-engine and force-pump are in order." It does not appear that the water-supply was ever distributed to these wards; for in his report for June, 1865, Inspector WILSON stated that the pavilion-wards were not finished in accordance with the original plans. They were each 180 feet long and had partitioned off from their attached ends a room—the original dining-room—in which the clothes of patients were stored and their medicine and diet distributed; and from their free ends two rooms—the original bath-room and water-closet—which were used, one as quarters for the wardmaster and the other for the nurses. The length of the ward-room was 150 feet, which, with 70 beds, gave 1,028 cubic feet of space per bed. The two-story administration building on the eastern side of the circle, running toward the bay, was 200×40 feet. A hall 8 feet wide divided it along its length on the lower floor into offices, dispensary and store-rooms, and on the upper into quarters, mess-rooms and kitchens for the officers and stewards.

In the centre of the circle was a water-tank, elevated on a platform over a bath-room fitted with eight tubs and supplied with hot and cold water. This position of the bath-room was not regarded as satisfactory—patients requiring warm or hot baths were too much exposed in traversing the corridor; besides, the room was not well lighted, and frequent leaking from the superimposed tank kept its floor constantly wet. A general lavatory was arranged around the outside of the bath-room. The four buildings within the circle met at right angles at the tank. The chapel, 85 × 24 × 20 feet, was lathed and plastered, and fitted with an elevated stage at one end and seats for an audience of 400. The knapsack-room, 63 × 25 × 20 feet, was suitably supplied with racks and pegs; a post-office and room for the baggage-master was partitioned off at one end of this building. The extra-diet kitchen, 65 × 25 × 20 feet, was paved with bricks and suitably fitted; it contained a store-room and a room for the night-watchman. The general kitchen, in use prior to the building of the pavilion-wards, continued to supply full diet for convalescents in the cottages and other wards of the old hotel establishment. The fourth building, intended as a laundry, does not appear to have been put to use; in some of the reports it was called a reading-room. The laundry, established in one of the old buildings on the point, was partitioned off into a wash-room, drying-room, ironing-room and engine-room.

The water-supply was from six or seven wells about 12 feet deep. These yielded a sufficient quantity, but the water often caused irritation of the bowels in new comers. The surface drainage was imperfect on account of the flatness of the point. There were no sewers. Sinks were built over the Potomac river, on which the free ends of the western pavilions abutted. The plate facing page 942 shows the arrangement of the buildings on the point.

Most of the hospitals that have been thus briefly described were in active service at the close of the year ending June 30, 1864. But these were by no means all that had been organized. The list appended to this chapter gives the name and locality of many others of similar construction and arrangement that were then in use. The extensive experience gained by the Medical Department in the administration of these hospitals led to a recognition of faults and an appreciation of what was advantageous and desirable. The knowledge thus gained was embodied in a circular published by the Secretary of War for the information and guidance of the Quartermaster's Department, which, under the Regulations of the Army, was charged with the duty of providing hospital accommodation for the troops. This circular read as follows:

WAR DEPARTMENT, July 20, 1864.

The following instructions are promulgated for the information of officers charged with the construction of general hospitals, and will be deviated from only in cases of imperative necessity: Buildings will not be taken or occupied for hospital purposes until after full examination and approval by a medical inspector or other officer of the Medical Corps detailed for this purpose; and all alterations will be made in accordance with plans submitted by him and approved by the Surgeon General.

(Signed)

E. M. STANTON,
Secretary of War.

Site.—The site of the hospital should be a well-drained plain, with a subsoil of gravel, and sufficiently extensive to accommodate the buildings. The situation should be elevated; as remote as possible from marshes or other sources of malaria, and must have a convenient supply of pure water.

Plan.—General hospitals will be constructed on the principle of detached pavilions, each ward being in a separate building, with beds for sixty patients. Besides the wards there will be detached buildings for each of the following purposes: General administration building, dining-room and kitchen for patients, dining-room and kitchen for officers, laundry, commissary and quartermaster's store-house, knapsack-house, guard-house, dead-house, quarters for female nurses, chapel, operating-room and stable. The wards, administration building, kitchens, dining-rooms and chapel are to be connected by covered walks which will have floors but no sides.

No general plan for the arrangement of the buildings can be directed, as the varying character and dimensions of sites render an uniform adherence to any one impracticable. Wards may be arranged *en echelon* in two converging lines, forming a V—in this case the administration building should be at the apex of the V, the other buildings

between the wings; or as radii from the periphery of a circle, ellipse or rounded oblong—in this case the administration building should be one of the radii, the other buildings within the enclosure; or parallel to each other—in this case the administration building should be in the centre of the row, the other buildings in the rear. Other plans may be rendered necessary by the special features of the ground. In any case the important points to be observed

are to place the buildings far enough apart (at least thirty feet should intervene between two parallel buildings), and to locate them in such a manner that no one shall interfere with the ventilation of another. It is preferable to locate the wards so that the long diameter may run north and south or nearly so.

Each ward will be a ridge-ventilated pavilion, one hundred and eighty-seven by twenty-four (187×24) feet. At each extremity two small rooms, nine by eleven (9×11) feet, one on each side of the passage, six (6) feet wide, will be partitioned off. The space remaining for patients will be one hundred and sixty-five by twenty-four (165×24) feet. See figure, which gives the location of the beds and position of the doors and windows. The small rooms are occupied as follows: a, chief nurse; b, closet for medicines, etc.; c, bath-room; d, closet for close-stools.

The wards will be fourteen (14) feet high from floor to eaves—the pitch of the roof to vary in accordance to the materials composing it. The floor to be elevated at least eighteen (18) inches from the soil, with free ventilation beneath it. A ward thus constructed will accommodate sixty (60) patients, allowing more than one thousand (1,000) cubic feet of air-space to each. The number of wards will be regulated by the number of patients the hospital is intended to accommodate. A hospital of twelve hundred (1,200) will require twenty (20) wards.

Administration Building.—For a hospital of six to twelve hundred (600 to 1,200) beds this will be a ridge-ventilated building, thirty-eight by one hundred and thirty-two (38×132) feet and two stories high; the first fourteen (14) and the second twelve (12) feet high in the clear. This building contains the general office, office of surgeon in charge, linen- and store-rooms, dispensary, chaplain's office, lodging-rooms for officers, etc.

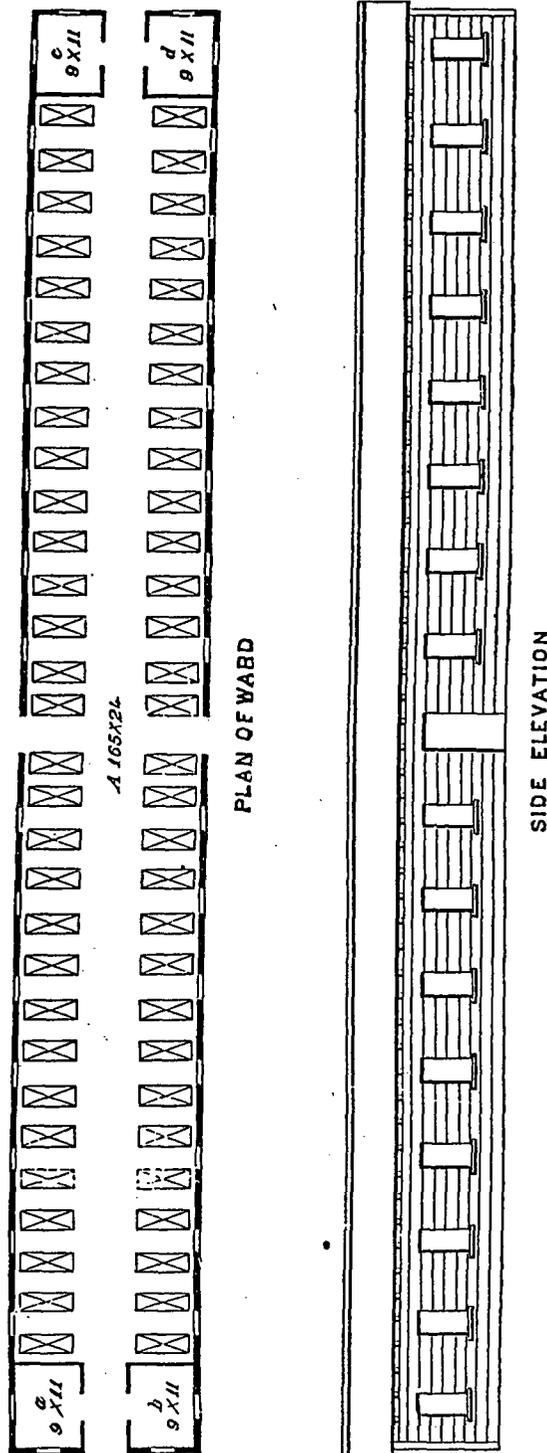
Dining-room and Kitchen for Patients.—The dining-room will be a ridge-ventilated building, large enough to seat a number equal to two-thirds the number of beds. The most convenient form is a long parallelogram, into which the kitchen opens in the centre of the long side. The kitchen will be divided into two unequal parts—the larger for the preparation of ordinary diet, the smaller for the extra diet—the cooking in both to be done on ranges. Where there is an engine steam may be advantageously used for boiling.

Dining-room and Kitchen for Officers.—A small building for this purpose will be situated near the administration building.

Laundry.—A building two stories high, with lodging for the laundresses on the second floor. The roof should be flat, with posts for stretching clothes-lines.

Commissary and Quartermaster Store-room.—A small two-story building, furnished with boxes and shelves for the various parts of the ration—having an ice-house connected with it for the preservation of meats and other perishable articles, and a room for clothing. The second story to contain lodging-rooms for the cooks.

Knapsack-house.—A building to receive the effects of the patients while in hospital. It will contain as many pigeon-holes, each two (2) feet square, as there are beds in the hospital.



Guard-house.—A detached building to lodge the guard, with a guard-room for prisoners.

Dead-house.—A small building containing two apartments, located so as not to be observed from the wards, and lighted by skylights.

Quarters for Female Nurses.—A detached building, containing lodging-rooms, dining-room and kitchen for the female nurses.

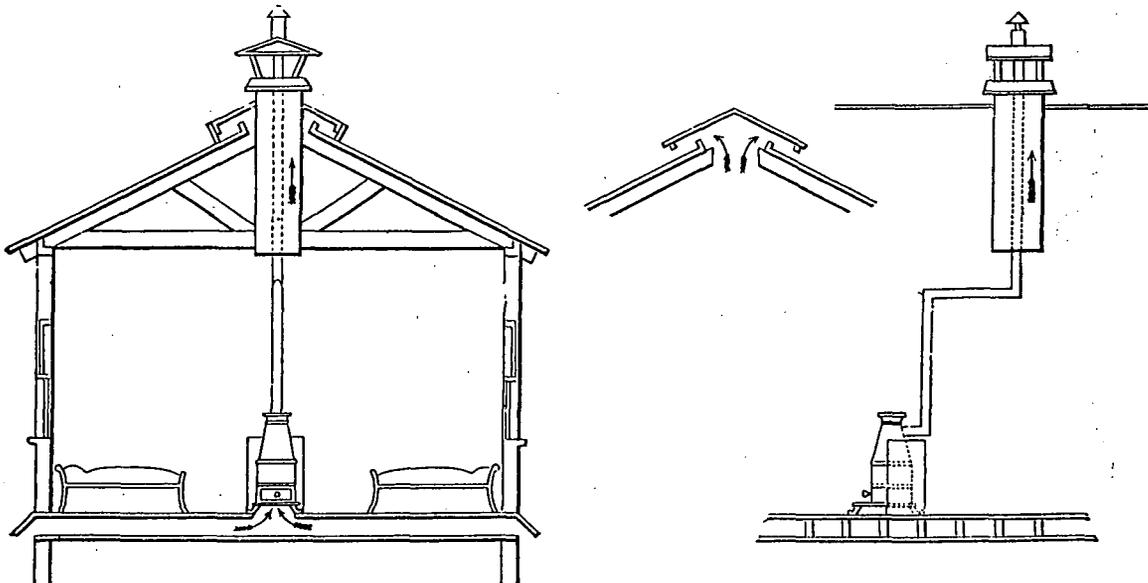
Chapel.—A detached building, fitted for the purpose of religious services, so arranged as to be used as a library and reading-room.

Operating-rooms.—Two rooms, each fifteen (15) feet square, one well lighted by skylights, the other by windows; the first for surgical operations, the second for discharge-boards, etc. It should be situated near the administration building.

Stable.—For ambulance and officers' horses.

Water-supply.—Where practicable, a large tank will be erected and kept supplied from wells or springs by pumps worked by a steam-engine. The engine, if possible, will be situated near the kitchen and laundry, in which case the steam may be made serviceable in cooking, and the power may be employed in working the washing- and mangling-machines.

Sinks.—Where the supply of water is adequate water-closets may be constructed in one of the small rooms in each ward; but where this is not the case privies will be built at a convenient distance from the wards, furnished with water-tight boxes, which must be emptied every night.



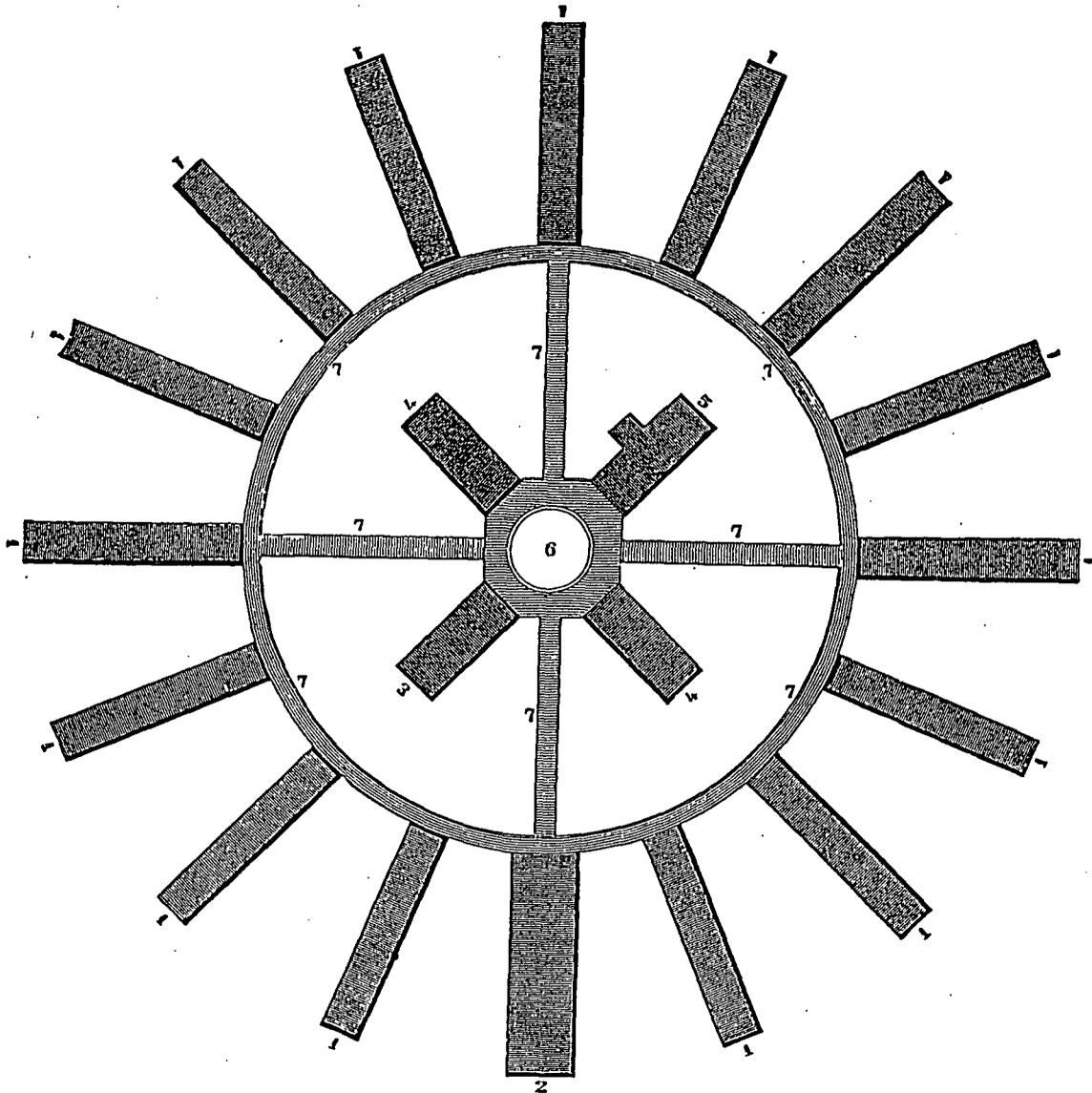
Ventilation.—During warm and mild weather the wards will be ventilated by the ridge, but during winter the ridge will be closed and ventilation by shafts substituted. Four stoves will be allowed to a ward, each partly surrounded by a jacket of zinc or sheet-iron, with an air-box opening beneath it to furnish the supply of fresh air. At eight (8) feet from the stove will be a shaft, properly capped, through which the stove-pipe will ascend. The shaft should be eighteen (18) inches square and should not come below the tie-beams.

The influence of this order was immediately felt, as may be observed by the following report on the CUMBERLAND HOSPITAL, Nashville, Tenn., by Medical Inspector R. H. COOLIDGE, U. S. Army. The Quartermaster's Department was about to replace the tent-wards hitherto used at this hospital by wooden buildings, when the publication of this circular caused a modification of the plans and elicited an explanation in regard to certain points which were not in conformity with its requirements.

The CUMBERLAND HOSPITAL, NASHVILLE, TENN., is situated on rolling ground on the Hillsboro' road, about one and a half miles west of the Capitol. It is composed of six hundred and fourteen tents, of which four hundred and thirty-three are hospital, fifty-seven wall and one hundred and twenty-four bell-tents. But in addition to these there are many shingle-roofed frame buildings, as for instance: Four division cook-houses, each containing a kitchen, pantry and dining-hall; three lavatories; one bath-house; one store-house for subsistence stores, clothing and knapsacks; one tool-house; one stable; one laundry; one special-diet kitchen; one dining-room and kitchen for medical officers; one operating-room; one dead-house and one office-building. The tents accommodate 2,600 patients, 222 attendants, 27 medical officers and 3 medical cadets. Water is obtained from the city water-works and from wells; the supply is insufficient, but the quartermaster is laying a six-inch main, which will afford an abundance.

The superficial drainage is excellent but the sewerage is deficient. This is about to be remedied. There are no water closets. Between the rows or streets of tents are small privies, the contents of which are drained by a sewer into a running branch which finally empties into the Cumberland river; but these sinks are not well supplied with water and are very objectionable. They will soon be removed.

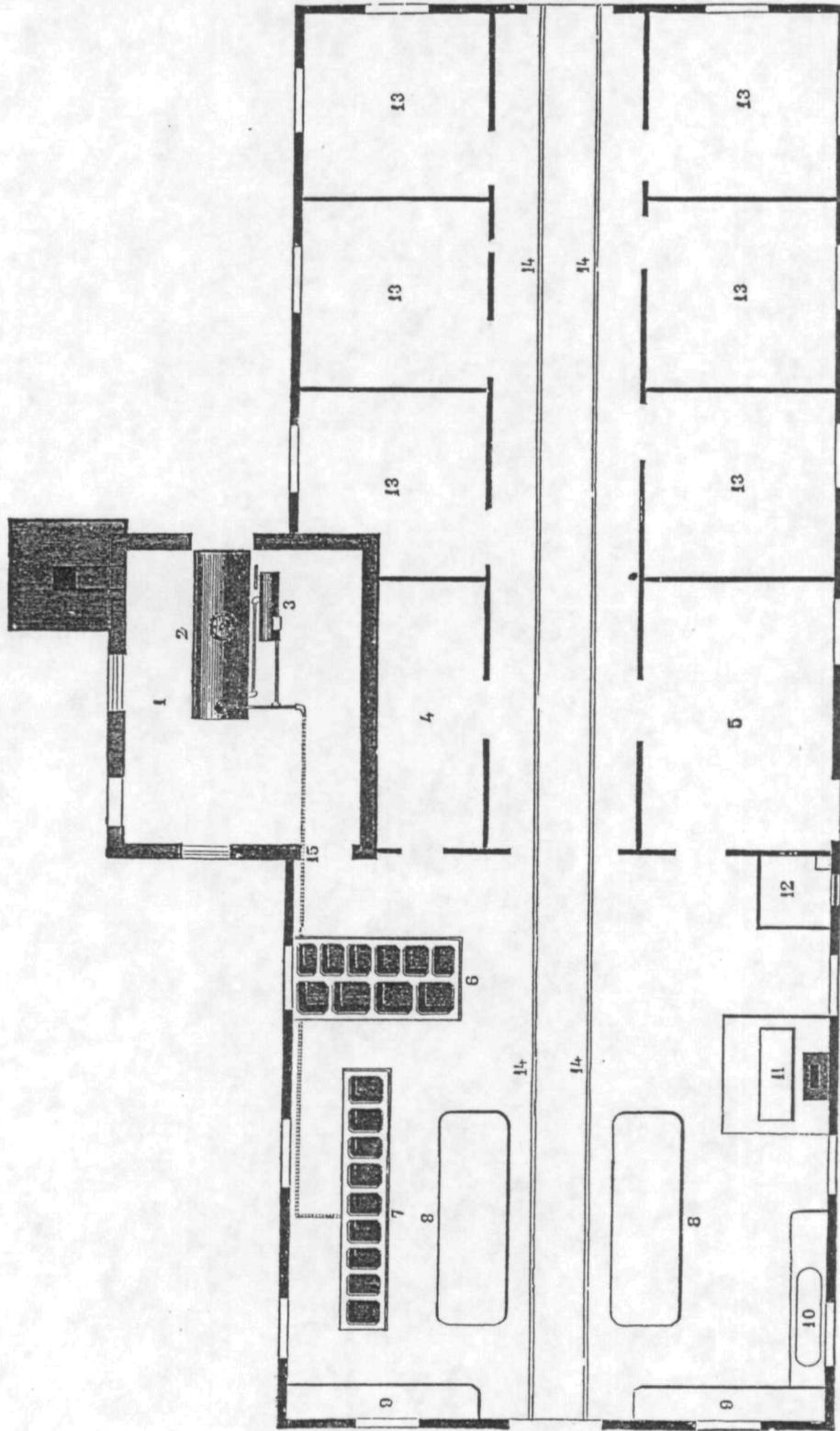
I have not attempted an elaborate description of this hospital for the reason that it is now in a transition state. The Quartermaster's Department, having completed its various supply depots, is now turning its attention to the construction of hospitals, and has commenced building on this site pavilions for 2,200 beds. A large force is at work and three of the pavilions are nearly completed. The plans adopted were somewhat similar to those announced by the Secretary of War July 20, 1864, and since that order was received they have been modified so as to conform thereto as far as practicable, the principal differences being that each pavilion is to be surrounded by a covered porch, and that the width will be 22 instead of 24 feet. The quartermaster in charge informed me that he could not get timber of sufficient length to make the wards 24 feet wide, and that if he spliced the timber it would add very much to the cost and greatly retard the construction of the building.



SEDGWICK HOSPITAL, GREENVILLE, LA.—Scale 120 feet to the inch: 1, Wards; 2, Administration building; 3, Guard-house, knapsack-room and store-house; 4, Dining-rooms; 5, Kitchen; 6, Cistern; 7, Covered ways through which a railway runs with hand-cars for carrying food to the wards.

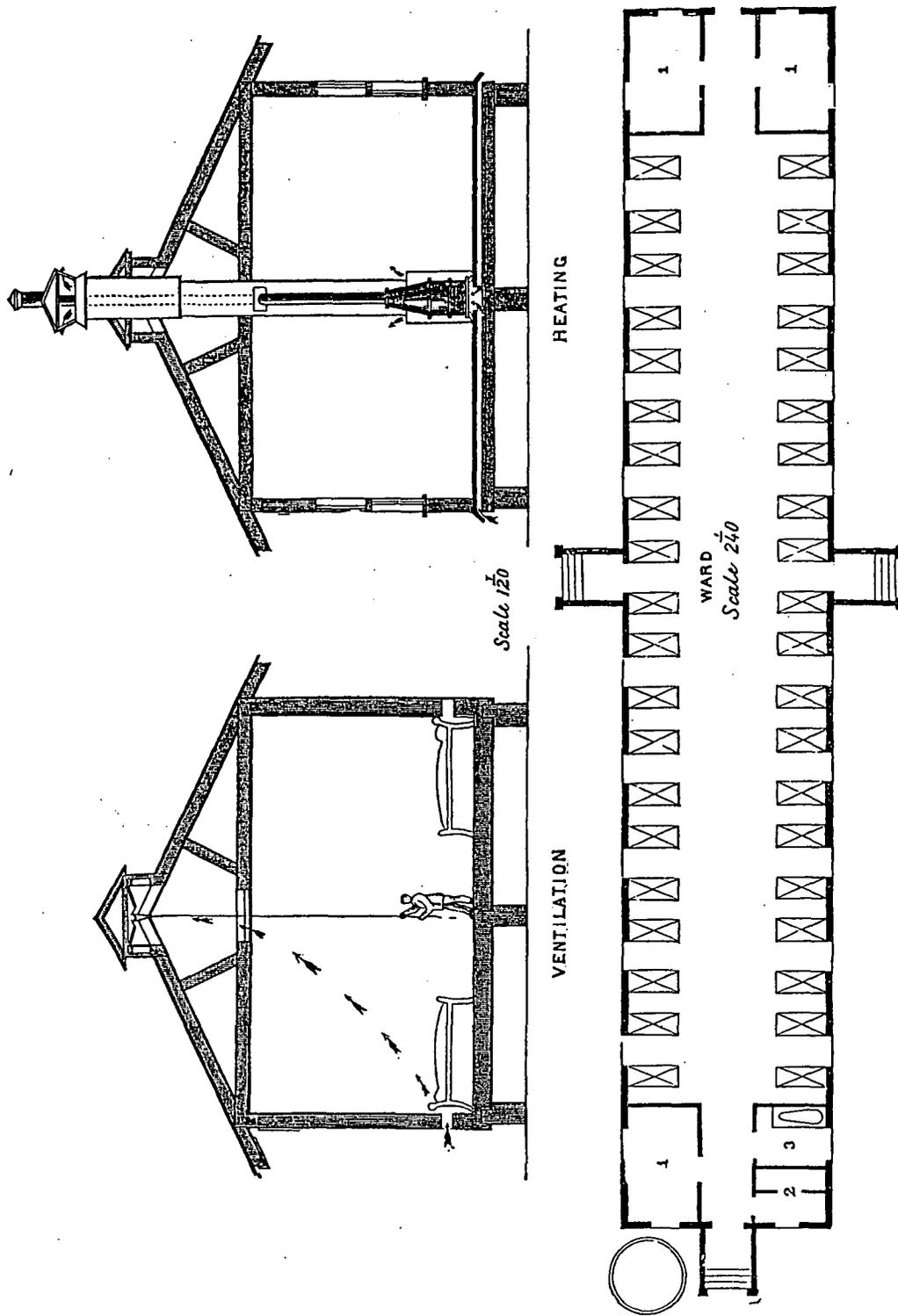
So many buildings had already been constructed or converted to hospital purposes in various parts of the country that but few were afterwards erected on the plans approved in this circular. The SEDGWICK HOSPITAL, Greenville, La., the HICKS, Baltimore, Md., and the SLOAN, Montpelier, Vt., were the most notable of these. The first was completed as a

hospital of 15 pavilions, radiating from a circular covered-way. The buildings were shorter than those suggested by the order of the Secretary of War, giving a clear ward length of only 115 feet, but the number of contained beds was proportionately diminished. The origi-



SEDGWICK HOSPITAL, GREENVILLE, LA.
 GROUND PLAN OF KITCHEN.—Scale 10 feet to the inch. 1, Engine-house; 2, Boiler; 3, Engine and pump; 4 and 5, Store-rooms; 6, Boiling-kettles; 7, Carving-table; 8, 8, Tables for the delivery of food; 9, Shelves; 10, Sink for washing dishes; 11, Extra-diet and roasting-range; 12, Garbage-box; 13, 13, 13, 13, 13, Rooms for cooks; 14, Railroad on which run hand-cars to carry food to the wards; 15, Steam-pipe to heat kettles and carrying-table.

nal design for the second was a hospital of 36 wards, radiating from a circular covered walk; but the signs of approaching collapse on the part of the South stayed its progress to completion, leaving it a hospital of 18 wards attached to a pathway of a semicircular form. The last was designed as a hospital of 12 pavilion-wards with its administrative, executive



SEBOWICK HOSPITAL, GREENVILLE, I.A.—Plan of ward, ventilation and heating: 1, 1, 1, Nurses' room; 2, Water-closets; and 3, Bath-rooms, at the free end of the ward. The double-lined circle indicates the position of the rain-water tank.

and other needful buildings radiating from an octagonal enclosure, bounded by a connecting covered-way, but the close of the war found it with four of its wards unbuilt and many of its accessories incomplete.

SEDGWICK HOSPITAL, GREENVILLE, LA., seven miles above New Orleans, was on a flat site on the east bank of the Mississippi, draining into the swamps between the river and Lake Pontchartrain. The grounds included about 30 acres; part was cultivated as a vegetable-garden for the hospital, the remainder, shaded by fine groves of live-oak, pecans, orange-trees, crape-myrtles and flowering shrubs, was traversed by shell-roads and winding pathways. The hospital was composed of fifteen one-story pavilion-wards, 145 × 24 feet, and a two-story administration building of the same length but 40 feet wide, radiating from the periphery of a circular covered-way.

They were constructed of boards set upright and battened, the roofs shingled and open at the ridge for ventilation. They were raised three feet from the ground on brick piers. Each pavilion had two small rooms partitioned from its inner end for the use of nurses and two from its outer end, one of which was used for nurses and the other divided into two for bath-room and water-closet. The ward-space was thus reduced to 115 feet, which, with the two beds between each pair of windows, gave 69 feet of floor-surface and 1,200 cubic feet of space to each of 40 beds. The corridor, 12 feet wide, was provided with a tramway and hand-cars to facilitate the distribution of food.

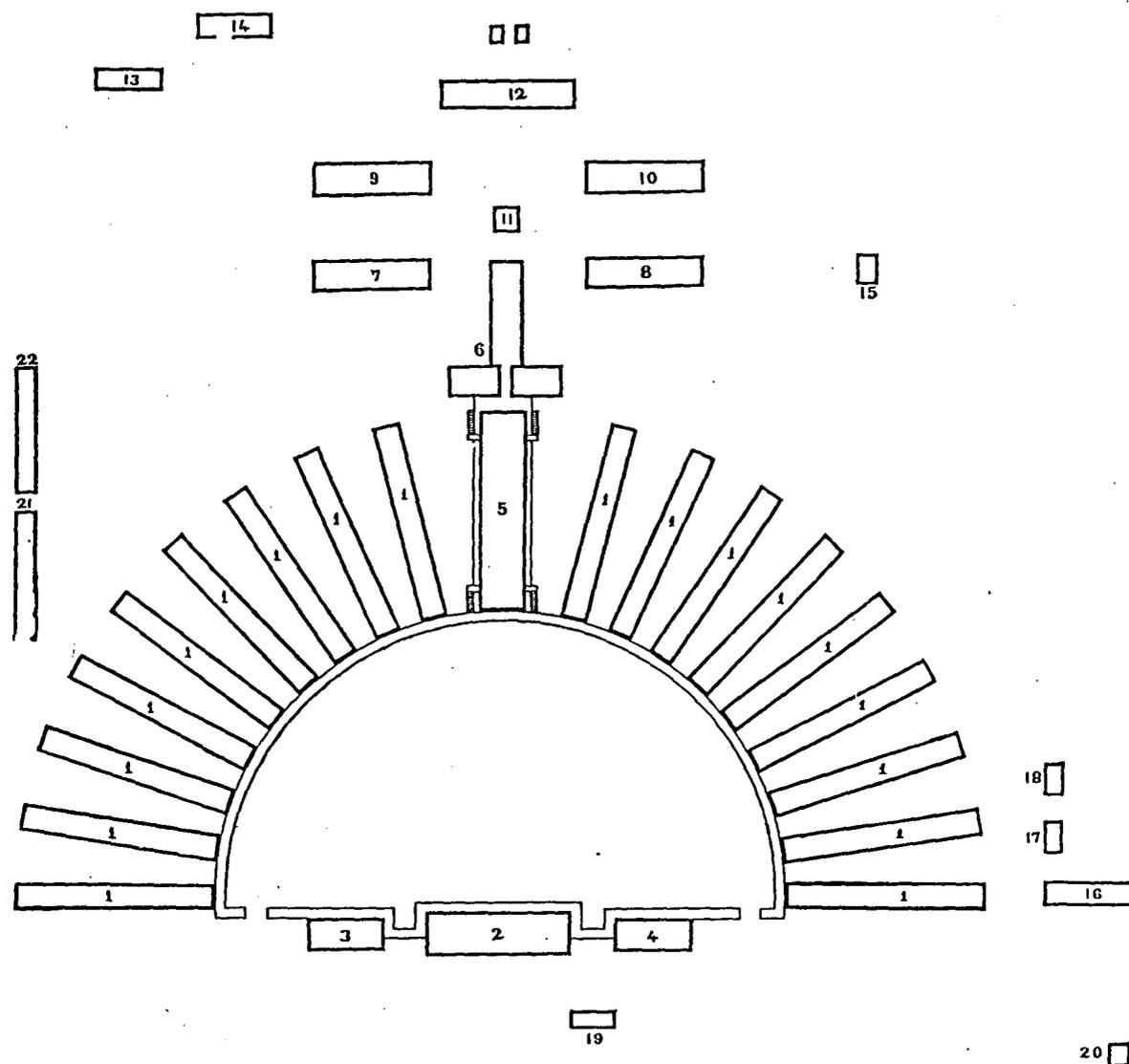
Two of the four buildings within the circle were used as dining-halls, one as kitchen and one as knapsack-room, store-house and guard-house. The kitchen, 80 × 30 feet, is shown on page 947. It contained a patent steam-cooking apparatus, extra-diet range, carving-table, store-rooms, bed-rooms, and a car-track continuous with that of the corridor. Outside the circle, at convenient distances, were detached buildings used as laundry, gas-house, bake-house, chapel, dead-house, stables, etc. Water for washing was obtained from a reservoir having a capacity of 320,000 gallons, on the river bank, whence it was distributed by pipes to the various buildings. Rain-water for drinking purposes was collected in a central cistern, which had a capacity of 150,000 gallons, and in small tanks holding 10,000 gallons each at the end of each ward. To perfect the surface-drainage the ground was graded from the centre of the circle to its periphery with a fall of one inch to every ten feet; surface-water was trapped into brick sewers which discharged into the swamps draining into the lake. The water-closets of the hospital were furnished with patent pans and discharged into brick sinks lined with cement; these sinks were connected with the sewers, into which their liquids drained.

The HICKS HOSPITAL, BALTIMORE, MD., was opened in June, 1865, in the western suburb of the city. The details of its construction were supervised by Surgeon THOMAS SIM, U. S. Vols. The original design contemplated a circular hospital on the War Department plan, with 36 radiating wards, each accommodating 60 patients, but the close of the war rendered its completion on this scale unnecessary; it thus became a hospital of 18 wards, projecting from the outer margin of a covered pathway or corridor having a semicircular plan. This was generally regarded as one of the best hospital establishments constructed during the war on account of the substantial character of its buildings and the many conveniences with which it was supplied.

The front of the hospital was formed by the administration building, which faced outwards in the centre of the straight line bounding the semicircular area. It was 132 × 38 feet and two stories high; the first floor contained the offices of the surgeon in charge, executive officer, quartermaster and commissary, the hospital library and printing-office, and the second the quarters of the medical officers. On its right was a building 70 × 28 feet, which contained the linen-room, post-office and officers' mess, and on its left a similar building containing the dispensary, medical store-rooms, room of the discharge-board, and an operating-room lighted from above. A covered pathway in rear of these buildings connected the ends of the semicircular corridor to which the wards were attached and closed in the unencumbered half-circle constituting the courtyard of the hospital.

The wards were built and ventilated as required by the War Department circular. The bath-rooms and water-closets were at the free extremity of each. The bath-room was furnished with a small stove and boiler for the supply of hot water. The water-closets contained troughs which were emptied and flushed several times daily into well-conditioned sewers. The water-supply was derived from the mains of the city. The wards were arranged along the convexity of the corridor, nine on each side of a central two-story building, which contained on its ground floor a dining-hall capable of seating 1,200 persons, and on its second floor, which was accessible by stairs from the outside, a chapel and dormitories for female nurses. In rear of this was a T-shaped building, used as kitchen and laundry; the general kitchen, extra-diet kitchen and bakery occupied separate rooms containing suitable ranges, steam-fixtures and bake-ovens; the laundry had provision for drying by steam. Behind the kitchen was a tank-house and beyond this the quarters for the guard. On the right flank of the projecting wards and at suitable distances were buildings used as quarters for detailed men, workshops, subsistence store-room, stable and wagon-house and ward for contagious diseases; on the left were the knapsack and quartermaster's store-rooms, sutler's store and some houses used as quarters by medical officers and stewards. The guard-room and guard-house were in front of the line of the administration building, near the entrance to the hospital grounds. The Army Medical Museum contains an excellent model of this hospital.

The SLOAN HOSPITAL, MONTPELIER, VT., was situated about a mile from the town, on a plateau 150 feet above the level of the Onion river, and surrounded by high hills, spurs of the Green Mountain range. The buildings radiated from an octagonal central space, around the circumference of which was a covered platform or pathway connecting the whole. They were to have consisted of an executive building, four sets of officers' quarters, twelve wards, two mess-halls, a general and an extra-diet kitchen, subsistence store-room, laundry, water-tank, operating-room, dead-house, chapel and barracks for the Veteran Reserve Corps guard, but some of these buildings were never



GROUND PLAN OF HICKS HOSPITAL, BALTIMORE, MD.—Scale, 180 feet to the inch: 1, 1, 1, 1, Wards; 2, Administration building; 3, Linen-room; 4, Dispensary and operating-room; 5, Dining-hall; 6, Kitchen and laundry; 7, Ward for detailed men; 8, Knapsack-room; 9, Subsistence store-house; 10, Quartermaster's store-house; 11, Tank; 12, Quarters for the guard; 13, Stable; 14, Wagon-house; 15, Sutler's store; 16, Steward's quarters; 17, 18, Officers' quarters (of which there are several not shown on the plan); 19, Guard-room; 20, Guard-house near entrance-gate; 21, Workshop; 22, Contagion-ward,—this was more distant than is represented. The wards, dining-room and administration building are connected by a covered-way.

completed. Those erected were substantially built of wood, lathed and plastered, clap-boarded, shingled and provided with double floors. Only eight of twelve wards were finished for service. They varied in length, but all were 26 feet wide and 12 feet high, and each had 12 feet partitioned off from the free end for subdivision into ward-master's room and lavatory. Six had a length of 108 feet, which, with 40 beds each, gave a superficies of 62 feet and an air-space, including the triangle of the ridge, of about 1,000 feet; the two other wards measured only 104 feet in length. They were well lighted by windows on both sides and ventilated by the ridge and floor. Water was brought through wooden pipes from a spring in the neighboring hills. A receiving-tank, with a capacity of 40,000 gallons, distributed it to the wards. A room in the laundry building was intended to be fitted up as a general bath-room. There were no water-closets attached to the wards, but set off from the rear of each was a small privy which communicated directly with the drainage system of the hospital. This consisted of a drain 12 inches square, of three-inch spruce plank, which surrounded all the buildings and then passed under the privies for the reception of sewage matter. This drain discharged into a small brook in the valley and could be flushed at will from the tank. The method proved a failure; foul odors penetrated to the wards and caused its disuse.

In view of the order of the Secretary of War, submitted above, and of the brief account of so many of the hospitals already given, it is needless to enlarge upon any particular scheme of hospital construction and arrangement. The experience of the war was decidedly in favor

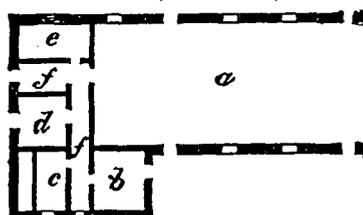
of the pavilion system, each pavilion constituting a single ward isolated from adjacent buildings by somewhat more than its own width, and connected by a covered walk with the other buildings of the hospital. In their aggregation this separation was effected, without removing any of the wards to an inconvenient distance from the administrative and executive buildings, by radiating them around some central point in a form to be determined by the configuration of the ground available for building.

But the plan of the pavilion-ward approved by the Secretary of War appears open to adverse criticism based upon the very experience which led to its adoption. Exception may be taken to it on two points—its length and the position of its water-closets.

The length of the pavilion as usually constructed was less than that recommended by the official circular. The latter assigned a length of 165 feet for 60 beds, but the advantage of this over 115 feet for 40 beds, as planned and carried out at the SEDGWICK HOSPITAL, may readily be questioned. The reports of our medical officers show a decided preference for a ward containing not over 50 beds. The experience of the British in the Crimea with similar pavilions was in favor of a ward containing only from 20 to 36 patients, as giving better ventilation and greater comfort and economy of labor than one of larger capacity.

It will be observed that the area per bed sanctioned by the official order was less than that allowed by the British regulations. Our long 60-bed ward gave an area of only 64 feet to each of its occupants; the British pavilion gave 87 feet, a ward for 20 men having been $72\frac{1}{2} \times 24 \times 14$ feet.

All the pavilion-wards built during the war had a space partitioned off at the free end, and generally also at the attached end, for use as a wardmaster's room, a pantry, bath-room and water-closets. Except in those great mistakes, the MOUNT PLEASANT and JUDICIARY SQUARE hospitals, at Washington, D. C., the water-closets were always at the free end of the building. In many of the hospitals they were attached to the lateral aspect of the pavilion at one of the angles of its free end and cut off from the interior of the ward by a hallway affording cross-ventilation. This was the arrangement adopted at the CUYLER, SUMMIT, McCLELLAN, MOWER, TILTON and many other hospitals. It is illustrated in the accom-



panying figure, in which *a* is the interior of the ward; *b*, the water-closet; *c*, the lavatory and bath-room; *d*, the pantry; *e*, the wardmaster's room, and *f* the ventilating-hall and passageways. Even in some of the earliest pavilions, as in those of the DE CAMP HOSPITAL, David's Island, N. Y. Harbor, the water-closets at each end of the four wards into which the building

was divided were separated by a passageway with cross-ventilation from the door communicating with the nearest ward. The official circular did not take cognizance of this arrangement, but recommended a method of direct communication between the ward and its water-closet. The ground on which this sanction was based does not appear on the records. It may have been argued that the cross-ventilation, obtained by placing the water-closet at the side and cutting off the bath-room and pantry by a transverse passage, was outweighed by the disadvantage of having one corner of the free end of the ward deprived of its window-light and ventilation. The interests of the patient occupying the bed in that corner were sacrificed by this method for the well-being of the majority. But these plans immediately suggest that the cross-ventilation could readily have been effected without injury to this corner of the ward by doing away with the side additions *b* and *c*, transferring the wardmaster's

room and pantry to the opposite end of the ward, and fitting up the cross-ventilated room *d* as a water-closet and *e* as a bath-room and lavatory. The arrangement would have afforded a better protection to the inmates of the ward from water-closet exhalations than that officially recognized. Or, to go further: The advisability of closing in the free end of the ward by service-rooms of any kind may be seriously questioned, as their apposition deprives that point of the building of all the advantages of exposure to sunlight and air which its position as a free end would otherwise confer upon it. A better site for the water-closet and bath-room of pavilions connected by a covered walk might have been found across the corridor from the attached end of the ward.

In other respects the War Department circular seems to have embodied all the advantages gathered by an extensive experience in the administration of large military hospitals.

Most of our pavilion-wards and their associated buildings were whitewashed externally, but the reflected glare was a source of so much discomfort that at some hospitals, as CAMP DENNISON, Ohio, and MAIN STREET, Covington, Ky., a yellow wash was substituted.

During the first summer of their use the wooden pavilions, open at the ridge, were conceived to fulfil all the requirements of a hospital-ward. The free communication with the external atmosphere furnished by the open ridge seemed to guarantee a purity of the air within, which, however, was not always found. The obvious explanation of this led immediately to the introduction of counter-openings along the wall near the level of the floor. These were provided with sliding-panels for closure in breezy or chilly weather, when the open ridge alone sufficed to give a free ventilation. But it frequently happened during the calm hot days of summer that, with all these provisions for the inlet and outflow of air, its stagnation in the wards was not overcome, and hospital gangrene occasionally appeared in pavilions crowded with wounded men. Some of the converted barrack-buildings of the CLIFFBURNE HOSPITAL, Washington, D. C., were thus visited. Apertures do not create a movement; they merely permit it to take place when forces naturally or artificially directed have called it into existence. When no aspiratory force operated as an exhaust at the ridge, and no material difference between the external and internal temperatures developed an inward current, the open ridge and floor apertures became for the time being valueless. In one of the Washington hospitals an effort was made to work fans by hand-power over any or all of the beds of a ward; but this was intended more for the comfort of the patients in sultry weather than as a method of artificial ventilation. At such times the tent-ward was regarded as better suited than the frame pavilion for hospital purposes. By looping up its sides the patients were practically moved into the open air, where diffusion and dilution took the place of ventilation. This was so well recognized that at most of the hospitals a tent-ward was set aside for the treatment of sloughing and gangrenous wounds.

But on the approach of winter the ridge had to be closed, as otherwise the ward became uncomfortably cold, and driving storms of wind and snow were free to penetrate. Its closure necessitated the introduction of special fresh-air inlets and ventilating-shafts and the utilization of the heat of the stove and stove-pipe. The inlets were boxed channels from the side walls opening beneath the stove, which was partially surrounded by a jacket of sheet-iron or zinc. The air, more or less warmed in its passage into the ward, became diffused and was ultimately drafted through a ventilating-shaft eighteen inches square, which extended from the level of the tie-beams to beyond the ridge. The stove-pipe, before penetrating the

shaft, traversed the length of the ward in a horizontal direction for about eight feet from its vertical connection with the stove.

On the whole this system of ventilation gave satisfactory results, although occasionally complaint was made that the entering air, insufficiently warmed in its transit, flooded the floor of the ward and chilled the feet of those who were not confined to bed. Dampers would have remedied this, but under the control of the patients they would have frequently obstructed all ventilation. Such complaints emanated mainly from wards in which the mistake had been made of running the ventilating-shaft from the floor upward. The stove-pipe entered this shaft at a height of eight feet and created through it a strong and steady draught which was felt as uncomfortable by all who were near its lower end. This fault at the JEFFERSON HOSPITAL, Jeffersonville, Ind., was aggravated by having the stove completely surrounded by a jacket of sheet-metal, which cut the men off from much heat that would have otherwise been radiated.

The water-supply of the hospitals varied with their locality. Those having free connection with the mains of a city-supply had usually an abundance of water except in a few instances of several-storied buildings or elevated sites, as at the CENTRAL PARK HOSPITAL, New York City, or the CITY HOSPITAL, St. Louis, Mo., where the water came only into the lower wards, leaving the upper to be supplied by tanks and force-pumps. Many of the larger hospitals, although freely connected with the city mains, kept on hand a reserve stock in large elevated cisterns chiefly as a provision in case of danger from fire,—the reserve cisterns at the MOWER HOSPITAL contained 102,000 gallons.

Those hospitals situated at a distance from any public water system were supplied from wells, springs, ponds and streams. When the source had a sufficient elevation the water was led directly into a distributing tank. The large hospital at PORTSMOUTH GROVE, R. I., derived all its water from a spring a quarter of a mile distant and elevated seventy feet above the hospital level; a reservoir was formed by damming the stream, and from this the water was brought to the hospital in pipes. When wells were used or water from a source having an insufficient elevation, steam was generally employed to raise the supply into a suitable distributing tank or cistern. When the local wells or springs proved insufficient, as was occasionally the case in some of the hospitals in the northern suburbs of Washington, water had to be brought in wagons from the nearest available source. Rain-water was sometimes used, as in Memphis, Tenn., and New Orleans, La.

The quality of the water was seldom questioned. At POINT LOOKOUT, Md., it was regarded as prone to cause diarrhoea. In a few instances exception was taken to the source of the supply—as at CAMP DENNISON, Ohio, where it was pumped from a mill-race fed by the Little Miami below the point where the drainage of the camp flowed into the river; at HENDERSONVILLE, Ky., where the intake from the Ohio was near a bank grossly covered with human filth; and at GERMANTOWN, Pa., where the supply was indirectly derived from a stream which was fouled by the drainage from factories and dyeing establishments.

The satisfactory disposal of excreta from the wards of these hospitals depended principally on the water-supply. Where this was ample, as when the hospital was freely connected with the mains of a city reservoir, the sewer connections were usually efficient. The questionable position of the water-closets in some of the pavilion-wards, and even in those officially sanctioned by the War Department, has already been noticed. In some hospitals the hopper-closet was used. In those thus fitted the water-closets were seldom offensive

except during some temporary interference with the flow of water. The water-closets on the upper floors of the hospital in CENTRAL PARK, New York, were frequently from this cause a source of complaint to the whole establishment. In others the seats were placed over a long iron trough through which a constant stream of water carried all deposited matters immediately to the sewers. But the necessity for economizing the water-supply caused the retention of the deposits in many of these troughs for several hours, the process of emptying and flushing taking place only so many times a day. The effluvium from water-closets of this class sometimes penetrated to the wards unless the closet itself was thoroughly ventilated and separated from the body of the building by a cross-ventilated passage. In some instances, as at MONTPELIER, Vt., wooden troughs in detached privies communicated with a rude sewerage system by means of a limited water-supply. The intention was to keep these troughs clear by occasional flushing, but the water-supply seldom permitted a realization of the anticipated success.

In hospitals with a defective water-supply boxes were used, sometimes in detached privies, sometimes even in the small rooms originally designed for a water-service. Of course these boxes, although emptied and cleaned with the utmost regularity and care, were of necessity a nuisance. Two instructive exceptions may, however, be noted, one at TURNER'S LANE, the other at the SUMMIT HOSPITAL, Philadelphia, Pa. Medical Inspector LE CONTE considered the ventilation of the privies of the former to have been the best of any in which the box-system was employed. Foul odors were carried off by flues which connected with special air-chambers heated by small stoves. "I have never," he says in one of his reports, "observed the least unpleasant odor even when the boxes most required to be emptied." At the SUMMIT HOSPITAL the box-privies attached to the side of one end of the pavilions were ventilated successfully by underground flues connected with the chimney of the engine-house. Our medical officers did not become familiar with the earth-closet until shortly after the war.

In some hospitals with a limited water-supply deep pits or vaults were used instead of movable boxes. These were more or less offensive in accordance with their position and the care taken in ventilating them and keeping them clean. CHESTER, Pa., furnished an illustration of the most offensive vaults, crowded as they were into the unventilated spaces between the long wards. The CRITTENDEN HOSPITAL, Louisville, Ky., had perhaps the best of these vaults, 30 feet deep, with the seats arranged on four sides of a high ventilating-shaft.

Besides the water-closets, privy-boxes or vaults attached to or in the immediate neighborhood of the wards, many of the hospitals had general sinks for the use of convalescents, guards, employés, etc. These were at some distance from the buildings. When the water-supply was ample, a trough containing a running stream carried the deposits to the sewers; when the supply was limited, the contents of the trough were flushed out at stated hours. At some hospitals favorably situated the latrines were erected over tidewater; at others movable boxes were used; at others, again, mostly small hospitals or large hospitals temporarily established, deep pits were used, which, when filled, were covered over and replaced by fresh excavations.

In cities the ultimate disposal of the excreta was effected by a communication with the general sewerage system; in other cases the sewers of the hospital found an outlet into some neighboring stream or tide-water; where no satisfactory outlet was obtainable the sewer terminated in a cesspool from which liquids percolated or overflowed by a suitable conduit into a natural incline leading from the hospital, and solids were removed from time

to time as they accumulated. The records of the general hospitals show but one outbreak of disease which was referred to faults of sewerage,—hospital gangrene and erysipelas occurred in one of the wards of the CUYLER HOSPITAL, Germantown, Pa. In June, 1864, there were ten cases of the former and four of the latter disease, and in July eight of the one and three of the other. A break in the sewer permitted extravasation into an old cess-pool near the walls of the pavilion in question. No case occurred after this defect had been discovered and remedied.

In the early period of the history of these hospitals no efficient provision was made against danger from fire. Even as late as December, 1862, there was no effectual means of subduing fire at David's Island, New York, although the hospital contained at the time 2,146 beds and was beyond the reach of any municipal assistance. The means of guarding against this danger became a subject of special inquiry by inspectors, and in a short time each hospital endeavored to rival the others in the efficiency of its fire department. Had a fire attained any headway among pavilions covered with tarred paper and massed together as were those of the SATTERLEE and many other hospitals, it is hardly to be supposed that the engine and hose would have preserved the establishment; but the fire-drill and the fire-buckets and axes in every ward, by keeping constantly before the inmates the imminence of the danger, led to such precautions and vigilance that fire was either prevented or detected and suppressed in its incipiency. Every nurse on night duty was a guard against fire; but in addition there was at most hospitals a special fire patrol. Full buckets and axes were kept in each ward, which was also provided with a suitable length of 1-inch rubber hose for attachment to a plug in the water-closet. For general use 2½-inch hose, plugs in various localities and steam-power were available, with a reserve supply of water in tanks in case of accident. At large factory buildings in cities fire-escapes were built on the outside.

The personnel of these hospitals consisted of the surgeon in charge and his staff, including stewards, clerks, attendants, cooks, laundry-workers, etc., and guards.

The *surgeon in charge* was entrusted with full and complete military command over the persons and property connected with the hospital. He was held to a corresponding responsibility. In exceptional instances the administration of a general hospital was disturbed by the assumption of military officers temporarily in command in their neighborhood. Thus at one period, when the wards of the DE CAMP HOSPITAL, David's Island, New York Harbor, were filled with sick and wounded Confederate soldiers, an officer of a higher rank or grade than the surgeon in charge was sent in command of a detachment of troops to guard the island and prevent the escape of convalescent prisoners. The duty of this officer was so clearly indicated that there was no occasion for interference with the management of the general hospital; yet, by virtue of his superiority in rank, he assumed control over the disposition of the local guard of convalescents and Veteran Reserves, taking them from their regular assignments to relieve his own command and otherwise interfering with the authority of the surgeon in charge. In fact, for the time being the general hospital became converted into the post hospital of a military camp, subject to the orders of the commander of the camp, although nothing in *his* orders authorized this change in the status of the general hospital. Again, on the small peninsula which had Fort Schuyler on its water front and the McDougall HOSPITAL across its isthmus, there occurred at one time a conflict of authority. Originally the sentinels of the fort were placed at the foot of the glacis along the line of fence separating it from the hospital; but at a later date they were posted across the isthmus,

thus including the hospital within the limits of the fort and subjecting its personnel to a certain extent to a double system of military observances, one of which was unusual and unnecessary at a general hospital, and wholly unauthorized in the instance in question. An immediate appeal to higher authority was of course the proper remedy for an evil of this character.

At small hospitals the surgeon in charge was his own executive officer, but at large establishments an active and intelligent medical man was detailed to aid him in his supervision. The special duties of the *executive officer* were those of adjutant to a commanding officer. He had charge of the office and records, of the clerks and orderlies, supervised the preparation of all regular reports, promulgated all orders and conducted the general correspondence. He made appropriate distribution of patients received for admission, and looked after the general well-being of the establishment as aid to his superior. Daily and weekly reports were sent to the Medical Director of the Department; monthly reports to the Surgeon General and Adjutant General; bimonthly muster and pay-rolls to the Adjutant General and Paymaster; quarterly reports of property purchased with the hospital fund to the Surgeon General, and returns of camp and garrison equipage to the Quartermaster General; annual returns of medicines and hospital stores to the Surgeon General, and such other reports and papers as were from time to time required by superior authority. Among the books kept in this office were records of admission, such as a hospital register of sick and wounded, supplemented by an alphabetical register and an alphabetical register by States; records of casualties, as of deaths, discharges and transfers; records of strength present, as the *Morning and Weekly Report Books*; records of local government, as the *Order-Book* and accounts of hospital fund and hospital property; and records of correspondence, including a book of letters sent, of letters received, of letters from the Adjutant General's office, of letters from the Surgeon General's office and an endorsement book.

The *ward physicians* numbered on the average about one to every seventy-five patients; but the strength of the medical staff varied with the character of the cases received for treatment. Naturally convalescents and chronic cases in remote hospitals required less medical attention than the acute cases found in those near the theatre of war.

At every hospital a ward physician, detailed from the roster, did duty for twenty-four hours as *medical officer of the day*. This officer was required to be present and awake during the period of his detail. He admitted patients in the absence of the executive officer, and prescribed in cases of emergency in the absence of the ward surgeons. He inspected the meals to see that they corresponded with the official diet-table and were of good quality and well prepared. He visited each ward at 9 p. m. and again after midnight, to regulate lights and note the vigilance of the night attendants, and he enforced discipline, at all times exacting from patients, attendants, visitors, etc., a strict conformity to the rules prescribed for each respectively. He was also required to make, at the conclusion of this duty, a written report to the surgeon in command exhibiting the true condition of the hospital, and suggesting such measures of reform or improvement as seemed to him advisable.

The ward physician was responsible for the medical and surgical treatment of his patients, for the police of the ward, the care of its property and the faithful discharge of their duties by his subordinates. He was present at surgeon's call in the morning and afternoon, and visited his ward at such other times as was needful for the proper care of individual cases. He was required also to keep the diet and prescription book of his ward and to make

a record of all cases of professional interest. He sent a morning report to the executive officer stating all changes and recommending others, such as the return to duty, furlough, discharge or transfer to the Invalid Corps of particular individuals.

The ward, in the absence of the physician, was under the care of a *wardmaster*, who was responsible for the comfort, diet and medication of the patients, the performance of their duty by the nurses and the cleanliness and discipline of both. He was charged with the preservation of the ward property, the transfer and return of linen and clothing from the laundry, the police of the sinks, lavatory, baths and water-closets, and the regulation of the fires, lights and ventilation.

Young men, students of medicine, under the title of *medical cadets*, were occasionally employed as clerks and dressers under the immediate supervision of the ward physician.

Three or four *hospital stewards* were employed at each hospital. One had charge of the dispensary and medical property. One was frequently employed as quartermaster-sergeant, making issues of clothing, blankets, etc., on proper requisitions, and preserving an official record of his transactions. Another was generally in charge of the subsistence, drawing rations from the department, issuing to the kitchens and keeping the accounts of the hospital fund. Sometimes a hospital steward acted as chief wardmaster, thus relieving the dispensary steward of his property responsibilities.

A *chaplain* was attached to most of the large hospitals. In addition to duties of a purely spiritual character, this officer performed valuable service by keeping a record of special patients, with the post-office addresses of their nearest relatives, and writing letters for those who desired to communicate with their friends but were unable to do so on account of wounds, sickness or other causes. The chaplain had supervision over the postal service, the reading-room, library and cemetery.

The proportion of attendants, cooks and other employés varied exceedingly in these hospitals. Convalescents in a ward were frequently rated as nurses until they were able to bear the fatigues of active service. A good deal of trouble was sometimes experienced in getting satisfactory ward attendance. When details were made by superior authority from regiments in the neighborhood, the regimental commander generally complied with the order by sending broken-down men who, but for this call to service, would probably have been admitted to the same hospital as patients. Hired civilians were undesirable, as they often left at a moment's notice. Details from the Veteran Reserve Corps, serving as guard at the hospital, usually gave better satisfaction, as its ranks were recruited from those who had served an apprenticeship to ward duties in the character of patients.

It was the general opinion of officers in charge that one wardmaster and two able-bodied nurses were sufficient for a pavilion of 50 beds when the cases were not of an acute character; otherwise five nurses, with help from convalescents, might be required to perform the duties in a satisfactory manner. A hospital of 1,000 beds had therefore on its rolls 20 wardmasters and from 40 to 100 nurses. But besides these, 5 or 6 men were required in the kitchen as cooks and 8 or 10 as assistants, usually convalescents, to peel potatoes and turnips, pick fish, chop meat and wash dishes; the laundry required 4 or 5, with occasional helpers, for its management; the bakery 3 or 4; the blacksmiths', painters' and carpenters' shops and stables 10 or 15, and the dispensary, knapsack-room, quartermaster's, subsistence and hospital store-rooms as many more; the dead-house and cemetery 3 or 4; the head-quarter office, including the library, about 10 men as clerks, messengers, etc.; and the quar-

ters and mess-rooms of the officers about 3 more, making a total of 120 to 200 employes. With able-bodied men specially enlisted for service in the medical corps this number would have been very materially reduced.*

Female nurses were borne on the rolls of many of the hospitals. At one time, in the WEST'S BUILDING, Baltimore, Md., 20 of 70 nurses were women; at STEWART'S MANSION 15 of 70, and at BEDLOE'S ISLAND, N. Y. Harbor, 10 of 70. These were frequently Sisters of Charity—40 served at SATTERLEE, 16 at POINT LOOKOUT and 15 at CLIFFBURNE. According to the testimony of all the medical officers who have referred to this point their best service was rendered in connection with extra diets, the linen-room and laundry. Male help was preferred in the wards, save in special cases of prostration and suffering where particular care was needful in the administration of dietetic or remedial agents. Sometimes, where no female aid was employed, female aid societies volunteered their services in superintending the extra diets and taking charge of the contribution room. At TURNER'S LANE and SOUTH STREET HOSPITALS, Philadelphia, Pa., a lady volunteer superintended the linen-room and extra diets. Another volunteer supervised the regularly appointed female nurses and had charge of the extra diets at CHESTER, Pa.

At first convalescents were detailed for *guard* and *general police duties*. This answered very well at remote hospitals, which were in reality barracks for convalescents and chronic invalids; but hospitals nearer the front could only have these duties performed by withholding the transfer to their regiments of men who were able for active service. Oftentimes at this period surgeons in charge were exposed to annoyances and their hospitals to irregularities which could neither be suppressed nor avoided for want of a police force. Afterwards one or more companies of the Veteran Reserve Corps were assigned to duty at each hospital. The senior officer of this command became responsible for the general police of the hospital grounds and the preservation of order within the limits of the command. Suitable fences around the grounds of a hospital reduced guard-duty to a minimum. At HAREWOOD, Washington, D. C., there was no fence around the extensive grounds, and although the guard was large, consisting of four companies of the Veteran Reserves, it was found impossible to prevent convalescents and others from eluding the vigilance of the sentinels and visiting the city, oftentimes to their great detriment. The officer of the Veteran Reserve Corps materially relieved the office of the surgeon in charge by supervising issues of cloth-

* Before this page passes from the hands of the compositor opportunity is taken to note the fact that the U. S. Army will soon be strengthened by a body of men such as is suggested in the text. The desirability of a trained corps of hospital nurses was well recognized during the war, but not until a quarter of a century later was legislative action obtained. The Act of Congress, approved March 1, 1887, authorized the enlistment of a special corps of men to be attached to the Medical Department, and to perform its duties under the orders and supervision of the officers of the department. This corps is now well advanced in its organization by special enlistments and promotions, after examination to determine the fitness of the candidates for its higher positions. The law provides one hospital steward for every post,—two, if the garrison consists of six companies, and one additional for every additional six companies; one acting hospital steward for each post, with privates at the rate of three for each post of one company, four for posts of two companies, with one man additional for each additional two companies. Moreover, four men of each company are designated for instruction as litter-bearers, to enable them to render temporary aid to the sick and wounded of their own organization, and from their ranks the privates of the hospital corps are recruited. Each post-surgeon is provided with an ambulance and harness, which must be at all times in good order and ready for service, and with hand-litters, caçolets, travois, and mule-litters as may be required. For war service the privates of the hospital corps will constitute two per cent. of the aggregate strength of the command, with an acting hospital steward to every ten privates and a steward to every thirty. They will perform the duties of litter-bearers, and servo with the ambulances at the primary dressing and ambulance stations and at the field hospitals of the command. For these duties they will be organized into a company for each brigade, with their stewards and acting stewards as non-commissioned officers, habitually camping near the field hospital to which they are attached. Ambulances are allowed in the proportion of one to a regiment of infantry of less than 200 men; two to a regiment of from 200 to 500 men; three to one of more than 500 men; one or two to a regiment of cavalry, according as it consists of less or more than 500 men, and one to a battery of artillery. The medical director exercises full control over this ambulance service. General hospitals will have six privates to every thirty beds, with as many hospital stewards and acting hospital stewards as may be required for efficient service. This allowance is ample, as may be seen by comparing it with the statements in the text. A railway hospital train of twenty cars, carrying six hundred sick and wounded, will be manned by two stewards, six acting stewards and one hundred privates; a hospital boat of three hundred beds will have three stewards, six acting stewards and sixty-five privates, and other cars and boats will have a proportionate allowance, varying, however, at the discretion of the medical director, according to the distance to be travelled and the character of the cases to be transported.

ing, preparing muster and pay-rolls, witnessing payments and closing up the personal accounts of patients on their death, discharge or transfer.

The *hospital fund* consisted of the credit on the books of the Subsistence Department for those parts of the ration which the sick men were unable to consume. The money-value of these articles, amounting monthly to very considerable sums, was applied to the purchase of delicacies for the extra-diet kitchen. Where hospital gardens were cultivated, as at NELSON, Ky., DENNISON, Ohio, and MADISON, Wis., or where the food-supply of the hospital was supplemented by fish caught by convalescents, as at PORTSMOUTH GROVE, R. I., the special diets were usually excellent. At other hospitals, where milk, eggs and chickens were scarce and correspondingly dear, the fund was sometimes inadequate. Transfers of a portion of the fund of a hospital in good circumstances to one not so favorably situated were occasionally made by order of the Surgeon General. Ignorance and want of economy on the part of the men detailed for duty as cooks often sapped the foundations of the hospital fund. Under such circumstances Surgeon L. A. EDWARDS, U. S. Army, realized a true economy at PORTSMOUTH GROVE in paying \$80 a month from the fund to a professional cook for supervising the work of the kitchen.

At hospitals in urban districts the introduction of gas was a great convenience, but as the money-value of the ration of candles failed to pay the bills it was purchased at the expense of the diet of the sick. At CHESTER, Pa., for instance, the gas-bill for November, 1864, was \$225.54, while the value of the candle ration amounted to only \$59.16.

The *slush fund* was derived from the sale of bones, fat, stale bread, slops, flour barrels, straw, manure, waste paper, old newspapers, etc., and from the tax on the sutler. The amount of this fund varied at different hospitals, but it was always considerable. At the McCLELLAN HOSPITAL it averaged \$200 per month; at HAREWOOD \$250; at DE CAMP \$400. As the regulations did not take cognizance of a fund of this character, it was used for the purchase of such articles as in the opinion of the surgeon in charge seemed desirable for the general benefit. Most of the large hospitals provided excellent libraries for their patients in part out of this fund. The McCLELLAN HOSPITAL, for instance, had 2,500 volumes besides pamphlets, and an average of forty-five daily papers, the weekly illustrated papers and monthly magazines; but much of this reading-matter was composed of gratuitous contributions. A melodeon for the chapel and instruments for a military band were purchased by many of the hospitals. The incidental expenses of lectures, concerts, theatrical and other entertainments on behalf of the patients were paid from this fund. Many hospitals supplied themselves with a printing-press, which was of use in the current work of the establishment, besides providing for the issue of a local paper under some appropriate title, such as the *Weekly Report*. But at some hospitals, where the hospital fund was inadequate to purchase the delicacies needful for the sick, this slush-fund was applied to supplement it. Usually the subsistence steward made the sales of the refuse matters which formed the basis of this fund, turning the money over to the hospital treasurer, generally one of the ward physicians, whose accounts were audited by a council of administration consisting of the three senior officers, exclusive of the surgeon in charge, on duty at the hospital.

The mortality rate of a hospital was sometimes quoted by the surgeon in charge as illustrating the healthfulness of its site and plan of construction or the efficiency of its management; but this rate depended so essentially on the character of the cases received for treatment that the influence of other conditions could seldom be expressed satisfactorily in

figures. At ARMORY SQUARE, Washington, D. C., the rate was 12.7 per cent. of the admissions. This hospital was for a long time used chiefly as a receiving depot for patients sent from the Army of the Potomac by the Alexandria, Va., railroad. All serious cases, including often men *in articulo mortis*, were retained; those capable of sustaining a continuance of the fatigues of travel were passed on to other hospitals. Hence the high rate of mortality. At MADISON, Wis., on the other hand, the rate was only 1.94. The inmates of this establishment were generally chronic cases or convalescents who had passed the dangerous period of their attack at some hospital near the front. These are extreme instances, but they illustrate the inutility of comparisons of this nature.

The extent of the hospital provision for the sick and wounded may be understood from the following list, which shows the capacity of the general hospitals on December 17, 1864:

DEPARTMENT OF WASHINGTON.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Armory Square	Washington, D. C.	Surgeon D. W. Bliss, U. S. V.	1,000	690	310
2	Carver	Do.	Surgeon O. A. Judson, U. S. V.	1,300	722	578
3	Campbell	Do.	Surgeon A. F. Sheldon, U. S. V.	900	633	267
4	Columbian	Do.	Surgeon T. R. Creeby, U. S. V.	844	538	306
5	Douglas	Do.	Ass't Surg. W. F. Norris, U. S. A.	400	203	197
6	Emory	Do.	Surgeon N. R. Moseley, U. S. V.	900	645	255
7	Finley	Do.	Surgeon G. L. Pancoast, U. S. V.	1,061	755	306
8	Freedman	Do.	Act. Ass't Surg. A. R. Abbott, U. S. A.	72	72	
9	Harwood	Do.	Surgeon R. B. Bontecou, U. S. V.	2,000	1,207	793
10	Judiciary Square	Do.	Ass't Surg. E. Griswold, U. S. V.	610	311	199
11	Kalorama	Do.	Act. Ass't Surg. R. I. Thomas, U. S. V.	434	64	380
12	Lincoln	Do.	Ass't Surg. J. O. McKee, U. S. A.	2,575	2,012	563
13	Mount Pleasant	Do.	Ass't Surg. H. Allen, U. S. A.	1,618	898	720
14	Ricord	Do.	Surgeon C. W. Hornor, U. S. V.	120	107	13
15	Stanton	Do.	Surgeon B. B. Wilson, U. S. V.	420	266	154
16	Stone	Do.	Ass't Surg. P. Glennan, U. S. V.	170	139	31
17	Seminary	Georgetown, D. C.	Surgeon H. W. Ducachet, U. S. V.	121	13	108
18	Augur	Near Alexandria, Va.	Surgeon G. L. Sutton, U. S. V.	668	403	265
19	Claremont	Alexandria, Va.		164	34	130
20	L'Ouverture	Do.		717	617	100
21	1st Division	Do.	Surgeon E. Bentley, U. S. V.	763	669	84
22	2d Division	Do.		893	856	137
23	3d Division	Do.		1,350	1,198	152
24	Fairfax Seminary	Virginia	Surgeon D. P. Smith, U. S. V.	336	373	63
25	U. S. General	Point Lookout, Md.	Surgeon A. Heger, U. S. A.	1,400	450	950
				21,420	13,865	7,561

DEPARTMENT OF PENNSYLVANIA.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Broad Street	Philadelphia, Pa.	Ass't Surg. T. C. Brainard, U. S. A.	525	411	64
2	Citizens' Voluntary	Do.	Surgeon R. S. Kenderdine, U. S. V.	236	48	188
3	Convalescent	Do.	Surgeon T. B. Reed, U. S. V.	766	590	176
4	Haddington	Do.	Surgeon S. W. Gross, U. S. V.	1,329	970	359
5	Islington	Do.	Act. Ass't Surg. J. V. Patterson, U. S. A.	60	15	45
6	McClellan	Do.	Surgeon L. Taylor, U. S. A.	1,089	1,089	
7	Mower	Do.	Surgeon J. Hopkinson, U. S. V.	3,100	2,311	789
8	Satterlee	Do.	Surgeon I. I. Hayes, U. S. V.	3,519	2,464	1,055
9	South Street	Do.	Act. Ass't Surg. R. J. Lewis, U. S. A.	288	288	
10	Summit House	Do.	Surgeon J. H. Taylor, U. S. V.	1,204	845	359
11	Turner's Lane	Do.	Surgeon R. A. Christian, U. S. V.	285	211	74
12	Officers'	Cammack Woods, Pa.	Ass't Surg. S. A. Storrow, U. S. A.	92	20	72
13	Chester	Chester, Pa.	Surgeon T. H. Bachs, U. S. V.	878	536	342
14	Caylor	Germantown, Pa.	Ass't Surg. H. S. Schell, U. S. A.	640	380	260
15	U. S. General	Pittsburgh, Pa.	Surgeon Jas. Bryan, U. S. V.	723	584	139
16	White Hall	White Hall, Pa.	Ass't Surg. W. H. Forwood, U. S. A.	1,369	778	593
17	York	York, Pa.	Surgeon St. John W. Mintzer, U. S. V.	1,600	1,003	593
18	Beverly	Beverly, N. J.	Ass't Surg. C. Wagner, U. S. A.	1,000	841	159
				18,709	13,412	5,297

figures. At ARMORY SQUARE, Washington, D. C., the rate was 12.7 per cent. of the admissions. This hospital was for a long time used chiefly as a receiving depot for patients sent from the Army of the Potomac by the Alexandria, Va., railroad. All serious cases, including often men *in articulo mortis*, were retained; those capable of sustaining a continuance of the fatigues of travel were passed on to other hospitals. Hence the high rate of mortality. At MADISON, Wis., on the other hand, the rate was only 1.94. The inmates of this establishment were generally chronic cases or convalescents who had passed the dangerous period of their attack at some hospital near the front. These are extreme instances, but they illustrate the inutility of comparisons of this nature.

The extent of the hospital provision for the sick and wounded may be understood from the following list, which shows the capacity of the general hospitals on December 17, 1864:

DEPARTMENT OF WASHINGTON.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Armory Square	Washington, D. C.	Surgeon D. W. Bliss, U. S. V.	1,000	690	310
2	Carver	Do.	Surgeon O. A. Judson, U. S. V.	1,300	722	578
3	Campbell	Do.	Surgeon A. F. Sheldon, U. S. V.	900	633	267
4	Columbian	Do.	Surgeon T. R. Crosby, U. S. V.	844	538	306
5	Douglas	Do.	Ass't Surg. W. F. Norris, U. S. A.	400	203	197
6	Emory	Do.	Surgeon N. R. Moseley, U. S. V.	900	645	255
7	Finley	Do.	Surgeon G. L. Pancoast, U. S. V.	1,061	755	306
8	Freedman	Do.	Act. Ass't Surg. A. R. Abbott, U. S. A.	72	72	
9	Harwood	Do.	Surgeon R. B. Dontecou, U. S. V.	2,000	1,207	793
10	Judiciary Square	Do.	Ass't Surg. E. Griswold, U. S. V.	510	311	199
11	Kalorama	Do.	Act. Ass't Surg. R. I. Thomas, U. S. V.	434	64	380
12	Lincoln	Do.	Ass't Surg. J. C. McKee, U. S. A.	2,575	2,012	563
13	Mount Pleasant	Do.	Ass't Surg. H. Allen, U. S. A.	1,618	898	720
14	Ricord	Do.	Surgeon C. W. Hornor, U. S. V.	120	107	13
15	Stanton	Do.	Surgeon B. B. Wilson, U. S. V.	420	260	154
16	Stone	Do.	Ass't Surg. P. Glennan, U. S. V.	170	139	31
17	Seminary	Georgetown, D. C.	Surgeon H. W. Duchacet, U. S. V.	121	13	108
18	Angur	Near Alexandria, Va.	Surgeon G. L. Sutton, U. S. V.	668	405	265
19	Claremont	Alexandria, Va.		164	34	130
20	L'Ouverture	Do.		717	617	100
21	1st Division	Do.	Surgeon E. Bentley, U. S. V.	753	669	84
22	2d Division	Do.		993	856	137
23	3d Division	Do.		1,350	1,198	152
24	Fairfax Seminary	Virginia	Surgeon D. P. Smith, U. S. V.	936	873	663
25	U. S. General	Point Lookout, Md.	Surgeon A. Heger, U. S. A.	1,400	450	950
				21,426	13,865	7,561

DEPARTMENT OF PENNSYLVANIA.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Broad Street	Philadelphia, Pa.	Ass't Surg. T. C. Brainerd, U. S. A.	525	411	64
2	Citizens' Voluntary	Do.	Surgeon H. S. Kenderdine, U. S. V.	236	48	188
3	Convalescent	Do.	Surgeon T. H. Reed, U. S. V.	766	690	170
4	Haddington	Do.	Surgeon S. W. Gross, U. S. V.	1,329	970	359
5	Islington	Do.	Act. Ass't Surg. J. V. Patterson, U. S. A.	60	15	45
6	McClellan	Do.	Surgeon L. Taylor, U. S. A.	1,089	1,089	
7	Mower	Do.	Surgeon J. Hopkinson, U. S. V.	3,100	2,311	789
8	Sattarlee	Do.	Surgeon I. I. Hayes, U. S. V.	3,519	2,464	1,055
9	South Street	Do.	Act. Ass't Surg. R. J. Lewis, U. S. A.	288	288	
10	Summit House	Do.	Surgeon J. H. Taylor, U. S. V.	1,204	845	359
11	Turner's Lane	Do.	Surgeon H. A. Christian, U. S. V.	285	211	74
12	Officers'	Cammack Woods, Pa.	Ass't Surg. S. A. Storrow, U. S. A.	92	20	72
13	Chester	Chester, Pa.	Surgeon T. H. Bache, U. S. V.	878	536	342
14	Cuyler	Germantown, Pa.	Ass't Surg. H. S. Schell, U. S. A.	646	380	266
15	U. S. General	Pittsburgh, Pa.	Surgeon Jas. Bryan, U. S. V.	723	584	139
16	White Hall	White Hall, Pa.	Ass't Surg. W. H. Forwood, U. S. A.	1,369	776	593
17	York	York, Pa.	Surgeon St. John W. Mintzer, U. S. V.	1,600	1,003	597
18	Beverly	Beverly, N. J.	Ass't Surg. C. Wagner, U. S. A.	1,000	841	159
				18,709	13,412	5,297

DEPARTMENT OF THE OHIO.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Brown	Louisville, Ky.	Ass't Surg. B. E. Fryer, U. S. A.	700	571	129
2	Clay	Do.	Surgeon F. Greene, U. S. V.	178	137	41
3	Crittenden	Do.	Surgeon N. F. Marsh, U. S. V.	360	356	4
4	Eruptive	Do.	Surgeon A. C. Swartzwelder, U. S. V.	203	148	55
5	Foundry	Do.	Surgeon A. B. Prescott, U. S. V.	200	106	94
6	Officers'	Do.	Surgeon C. McDermont, U. S. V.	87	18	19
7	U. S. General	Ashland, Ky.	Act. Ass't Surg. C. W. McMillan, U. S. A.	275	106	169
8	U. S. General	Bowling Green, Ky.	Act. Ass't Surg. H. G. Keefer, U. S. A.	146	120	26
9	Main Street	Covington, Ky.	Surgeon A. M. Speer, U. S. V.	300	63	237
10	Seminary	Do.	Surgeon A. M. Speer, U. S. V.	218	54	164
11	Joe Holt	Jeffersonville, Ky.	Surgeon H. P. Stearns, U. S. V.	980	847	133
12	U. S. General	Lexington, Ky.	Act. Ass't Surg. R. Peter, U. S. A.	463	352	111
13	Nelson	Camp Nelson, Ky.	Surgeon D. Meeker, U. S. V.	700	555	145
14	Jefferson	Jeffersonville, Ind.	Surgeon M. Goldsmith, U. S. V.	2,399	2,265	134
15	No. 16	Do.	Ass't Surg. J. Gardner, 24th Ky. Vols.	144	91	53
16	U. S. General	Knoxville, Tenn.	Surgeon B. Barnum, 25th Mich. Vols.	1,190	1,168	24
17	Officers'	Do.	Surgeon B. Barnum, 25th Mich. Vols.	42	15	27
				8,635	6,070	1,665

DEPARTMENT OF THE EAST.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Ladies' Home	New York City, N. Y.	Surgeon A. B. Mott, U. S. V.	402	345	57
2	St. Joseph	Do.	Surgeon B. A. Clements, U. S. A.	325	229	96
3	Transit	Do.	Surgeon A. H. Hoff, U. S. V.	62	62	0
4	David's Island	Do.	Ass't Surg. W. Webster, U. S. A.	1,700	870	830
5	St. Columbus	Do.	Ass't Surg. P. S. Conner, U. S. A.	100	19	81
6	Grant	Do.	Surgeon A. H. Thurston, U. S. V.	1,293	393	900
7	McDougall	Willet's Point, N. Y.	Ass't Surg. S. H. Orton, U. S. A.	1,184	506	678
8	Officers'	Pt. Schuyler, N. Y.	Surgeon J. Simons, U. S. A.	103	20	83
9	Albany	Bedloe's Island, N. Y.	Ass't Surg. M. F. Cogswell, U. S. V.	482	428	54
10	Buffalo	Albany, N. Y.	Dr. J. M. Brown	150	61	89
11	Sisters of Charity	Do.	Surgeon A. Crispell, U. S. V.	200	69	131
12	Elmira	Elmira, N. Y.	Act. Ass't Surg. J. K. Stanchfield, U. S. A.	325	231	94
13	St. Mary's	Rochester, N. Y.	Act. Ass't Surg. A. Backus, U. S. A.	680	636	144
14	Troy	Troy, N. Y.	Surgeon G. H. Hubbard, U. S. V.	300	219	81
15	Ward	Nowark, N. J.	Ass't Surg. J. T. Calhoun, U. S. A.	927	743	184
16	Knight	New Haven, Conn.	Surgeon P. A. Jewett, U. S. V.	607	610	97
17	Webster	Manchester, N. H.	Surgeon A. T. Watson, U. S. V.	475	258	217
18	Brattleboro'	Brattleboro', Vt.	Surgeon E. E. Phelps, U. S. V.	725	415	310
19	Baxter	Burlington, Vt.	Act. Ass't Surg. S. W. Thayer, jr., U. S. A.	500	336	164
20	Sloan	Montpelier, Vt.	Surgeon H. James, U. S. V.	469	421	48
21	Mason	Boston, Mass.	Act. Ass't Surg. W. E. Townsend, U. S. A.	60	59	1
22	Readville	Readville, Mass.	Surgeon F. H. Gross, U. S. V.	1,000	705	295
23	Dale	Worcester, Mass.	Surgeon C. N. Chamberlain, U. S. V.	370	480	110
24	Lovell	Portsmouth Grove, R. I.	Surgeon L. A. Edwards, U. S. A.	1,464	713	751
25	Cony	Augusta, Me.	Act. Ass't Surg. G. E. Brickett, U. S. A.	816	816	0
				14,829	9,302	5,527

NORTHERN DEPARTMENT.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Officers'	Cincinnati, Ohio	Surgeon W. H. Goldbrecht, U. S. V.	75	57	18
2	Marine	Do.	Surgeon N. Gay, U. S. V.	122	112	10
3	Washington Park	Do.	Act. Ass't Surg. J. B. Smith, U. S. A.	150	122	28
4	West End	Do.	Act. Ass't Surg. B. Bartholow, U. S. A.	120	111	9
5	Seminary	Columbus, Ohio	Ass't Surg. G. Saal, U. S. V.	150	145	5
6	Dennison	Camp Dennison, Ohio	Surgeon Wm. Varian, U. S. V.	1,716	1,534	182
7	U. S. General	Camp Chase, Ohio	Surgeon S. S. Schultz, U. S. V.	200	140	60
8	U. S. General	Cleveland, Ohio	Ass't Surg. G. M. Sternberg, U. S. A.	330	250	71
9	U. S. General	Gallipolis, Ohio	Surgeon L. R. Stone, U. S. V.	350	250	100
10	U. S. General	Evansville, Ind.	Act. Ass't Surg. J. A. Jeancon, U. S. A.	702	702	0
11	U. S. General	Indianapolis, Ind.	Act. Ass't Surg. J. M. Kitchen, U. S. A.	256	240	16
12	U. S. General	New Albany, Ind.	Surgeon Thomas W. Fry, U. S. V.	860	838	22
13	Ohio	Do.	Act. Ass't Surg. J. A. Ockerlony, U. S. A.	300	268	32
14	Corps d'Afrique	Do.	Act. Ass't Surg. W. A. Clapp, U. S. A.	146	114	32
15	Madison	Madison, Ind.	Surgeon G. Grant, U. S. V.	2,430	2,430	0
16	Desmarres	Chicago, Ill.	Surgeon J. S. Hildreth, U. S. V.	150	129	21
17	Marine	Do.	Act. Ass't Surg. R. N. Isham, U. S. A.	110	99	11
18	U. S. General	Quincy, Ill.	Surgeon D. G. Brinton, U. S. V.	950	891	59
19	U. S. General	Camp Butler, Ill.	Act. Ass't Surg. Wm. Sturgis, U. S. A.	525	525	0
20	U. S. General	Camp Douglas, Ill.	Surgeon J. C. Whitehill, U. S. V.	137	127	10
21	Simons	Mound City, Ill.	Surgeon H. Gardner, U. S. V.	788	788	0
22	Harper	Detroit, Mich.	Act. Ass't Surg. D. O. Farrand, U. S. A.	578	578	0
23	St. Mary's	Do.	Act. Ass't Surg. W. H. Gorminger, U. S. A.	276	276	0
				11,421	10,735	686

MIDDLE DEPARTMENT.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Convalescent	Baltimore, Md.	Surgeon Thos. Sim, U. S. V.	380	302	78
2	Jarvis	Do.	Ass't Surg. DeWitt C. Peters, U. S. A.	1,213	955	254
3	National Hotel	Do.	Surgeon Z. E. Bliss, U. S. V.	400	303	97
4	Newton University	Do.	Surgeon R. W. Pease, U. S. V.	260	248	12
5	McKim's Mansion	Do.	Surgeon L. W. Read, U. S. V.	300	213	87
6	West's Buildings	Do.	Surgeon A. Chapel, U. S. V.	425	305	120
7	Division No. 1	Annapolis, Md.	Surgeon B. A. Vanderkloft, U. S. V.	1,562	1,845	17
8	Division No. 2	Do.	Surgeon G. S. Palmer, U. S. V.	600	482	118
9	Officers'	Do.	Surgeon B. A. Vanderkloft, U. S. V.	409	169	240
10	Annapolis Junction	Annapolis Junction	Ass't Surg. C. Bacon, U. S. A.	290	273	17
11	Tilton	Wilmington, Del.	Surgeon E. J. Bally, U. S. A.	350	194	156
				6,189	4,993	1,196

DEPARTMENT OF THE NORTHWEST.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Harvey	Madison, Wis.	Surgeon H. Culbertson, U. S. V.	592	592	
2	Swift	Prairie du Chien, Wis.	Act. Ass't Surg. F. W. Kelly, U. S. A.	290	160	130
3	U. S. General	Davenport, Iowa	Act. Ass't Surg. J. M. Adler, U. S. A.	300	252	48
4	U. S. General	Keokuk, Iowa	Surgeon M. K. Taylor, U. S. V.	1,350	1,030	320
				2,532	2,034	498

DEPARTMENT OF THE TENNESSEE.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Overton	Memphis, Tenn.	Ass't Surg. J. C. G. Happersett, U. S. A.	450	326	124
2	Gayoso	Do.	Surgeon F. N. Burke, U. S. V.	400	174	226
3	Adams	Do.	Ass't Surg. J. M. Study, U. S. V.	500	305	195
4	Officers'	Do.		100	21	79
5	Old State (Pest)	Do.	Act. Ass't Surg. G. F. Huntington, U. S. A.	200	27	173
6	Washington	Do.	Act. Ass't Surg. E. C. Strode, U. S. A.	400	161	239
7	Webster	Do.	Surgeon J. L. Teed, U. S. V.	500	54	446
8	Pest	Near Vicksburg, Miss.	Act. Ass't Surg. E. H. Buck, U. S. A.	80	35	45
9	U. S. General, No. 2	Do.	Surgeon R. F. Stratton, 11th Ill. Cav.	175	78	97
10	U. S. General, No. 3	Do.	Surgeon B. S. Chase, 63d Colored Troops	250	82	168
				3,055	1,263	1,792

DEPARTMENT OF KANSAS.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	U. S. General	Leavenworth, Kans.	Surgeon G. W. Hogeboom, U. S. V.	300	160	140
2	U. S. General	Fort Scott, Kans.	Surgeon A. C. Van Duyen, U. S. V.	200	140	60
				500	300	200

DEPARTMENT OF THE CUMBERLAND.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	U. S. General, No. 1	Nashville, Tenn.	Surgeon B. B. Breed, U. S. V.	936	724	212
2	U. S. General, No. 2	Do.	Surgeon J. E. Herbst, U. S. V.	886	717	169
3	U. S. General, No. 3	Do.	Surgeon J. R. Ludlow, U. S. V.	600	530	70
4	U. S. General, No. 8	Do.	Ass't Surg. C. C. Byrne, U. S. A.	540	451	89
5	U. S. General, No. 11	Do.	Act. Ass't Surg. G. W. France, U. S. A.	720	95	625
6	U. S. General, No. 14	Do.	Surgeon S. E. Fuller, U. S. V.	775	583	192
7	U. S. General, No. 15	Do.	Act. Ass't Surg. J. J. O'Rielly, U. S. A.	400	319	81
8	U. S. General, No. 16	Do.	Act. Ass't Surg. J. S. Giltner, U. S. A.	289	289	
9	U. S. General, No. 17	Do.	Surgeon J. E. Herbst, U. S. V.	120	117	3
10	U. S. General, No. 19	Do.	Surgeon W. H. Thorne, U. S. V.	629	611	18
11	Cumberland	Do.	Surgeon B. Cloak, U. S. V.	900	520	380
12	U. S. General, No. 1	Chattanooga, Tenn.	Surgeon J. H. Phillips, U. S. V.	761	761	
13	U. S. General, No. 2	Do.	Ass't Surg. R. McGowan, U. S. V.	1,100	944	156
14	U. S. General, No. 4	Do.	Act. Ass't Surg. L. S. Tesson, U. S. A.	160	135	25
15	Employés	Do.	Surgeon C. H. Morton, 8th Ky. Vols.	69	62	7
16	U. S. General	Gallatin, Tenn.	Surgeon J. W. Brady, 8th Tenn. Cav.	108	104	4
17	U. S. General	Lookout Mountain, Tenn.	Surgeon R. M. S. Jackson, U. S. V.	800	328	474
18	Officers'	Do. do.	Surgeon L. D. Harlow, U. S. V.	200	85	115
19	U. S. General	Murfreesboro', Tenn.	Surgeon S. D. Turney, U. S. V.	458	392	66
20	U. S. General	Tullahoma, Tenn.	Surgeon S. Hart, U. S. V.	100	91	9
21	Field	Bridgeport, Ala.	Ass't Surg. H. T. Legler, U. S. V.	200	83	117
				10,751	7,939	2,812

THE GENERAL HOSPITALS.

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DEPARTMENT OF THE MISSOURI.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Marine	St. Louis, Mo.	Surgeon J. K. Rogers, U. S. V.	300	272	28
2	Small-pox	Do.	Act. Ass't Surg. S. W. Adreon, U. S. A.	235	56	179
3	U. S. General	Benton Barracks, Mo.	Surgeon Ira Russell, U. S. V.	575	181	394
4	U. S. General	Jefferson Barracks, Mo.	Surgeon John F. Randolph, U. S. A.	1,700	1,605	95
5	U. S. General	Jefferson City, Mo.	Surgeon J. H. Ledlie, U. S. V.	230	189	41
6	U. S. General	Kansas City, Mo.	Act. Ass't Surg. G. H. Hood, U. S. A.	102	102	
7	U. S. General	Rolla, Mo.	Act. Ass't Surg. R. Crowell, U. S. A.	120	105	15
8	U. S. General	Springfield, Mo.	Act. Ass't Surg. F. A. Bushay, U. S. A.	200	128	72
				3,462	2,638	824

DEPARTMENT OF VIRGINIA AND NORTH CAROLINA.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	U. S. General	Near Fort Monroe, Va.	Ass't Surg. E. McClellan, U. S. A.	3,497	3,063	434
2	Balfour	Portsmouth, Va.	Surgeon J. H. Frantz, U. S. A.	850	660	190
3	Beaufort	Beaufort, N. C.	Surgeon N. P. Rice, U. S. V.	222	87	135
4	Foster	New Berne, N. C.	Surgeon N. Mayer, 16th Conn. Vols.	475	336	139
6	Mansfield	Morehead City, N. C.	Ass't Surg. J. C. Palmer, 85th N. Y. Vols.	300	137	163
				5,344	4,283	1,061

DEPARTMENT OF THE GULF.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	St. James	New Orleans, La.	Ass't Surg. S. M. Horton, U. S. A.	300	9	291
2	University	Do.	Surgeon S. Kneeland, U. S. V.	600	218	382
3	Marine	Do.	Surgeon J. Bockee, U. S. V.	800	255	545
4	U. S. Barracks	Do.	Surgeon J. P. G. Baxter, U. S. V.	928	133	795
5	St. Louis	Do.	Surgeon A. McMahon, U. S. V.	550	187	363
6	Charity	Do.	Dr. A. W. Smith	650	10	640
7	Corps d'Afrique	Do.	Surgeon F. E. Piquette, 86th U. S. C. T.	1,600	835	665
8	U. S. General	Baton Rouge, La.	Surgeon C. Winne, 77th Ill. Vols.	480	344	136
				6,808	1,991	3,817

DEPARTMENT OF THE SOUTH.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	U. S. General	Beaufort, S. C.	Surgeon John Treanor, jr., U. S. V.	320	262	58
2	Officers'	Do.	Surgeon A. P. Dalrymple, U. S. V.	20	2	18
3	U. S. General	Hilton Head, S. C.	Ass't Surg. John F. Huber, U. S. V.	426	268	158
4	U. S. General	St. Augustine, Fla.	Ass't Surg. James F. Woods, U. S. A.	175	73	102
				941	605	336

DEPARTMENT OF ARKANSAS.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	U. S. General	Little Rock, Ark.	Surgeon E. A. Clark, U. S. V.	580	550	30
2	Colored	Do.		129	72	57
3	Officers'	Do.		46	10	36
4	U. S. General	Fort Smith, Ark.	Surgeon C. E. Swasey, U. S. V.	325	292	33
5	U. S. General	Helena, Ark.	Ass't Surg. W. M. Dorrain, U. S. V.	250	62	188
6	U. S. General	Deval's Bluff, Ark.	Surgeon E. A. Lee, 54th U. S. C. T.	187	115	72
				1,547	1,101	446

DEPARTMENT OF WESTERN VIRGINIA.

No.	NAME.	LOCALITY.	MEDICAL OFFICER IN CHARGE.	BEDS.	OCCUPIED.	VACANT.
1	Cumberland	Cumberland, Md.	Surgeon J. B. Lewis, U. S. V.	1,000	707	293
2	Frederick	Frederick, Md.	Ass't Surg. R. F. Weir, U. S. A.	1,114	757	357
3	Grafton	Grafton, W. Va.	Surgeon S. N. Sherman, U. S. V.	342	173	169
4	Parkersburg	Parkersburg, W. Va.	Ass't Surg. W. A. Banks, U. S. V.	382	197	185
5	U. S. General	Wheeling, W. Va.	Act. Ass't Surg. John Kirker, U. S. A.	200	144	56
				3,038	1,978	1,060

RECAPITULATION.

DEPARTMENTS.	CAPACITY.	OCCUPIED.	VACANT.
Washington	21,426	13,885	7,561
Pennsylvania	18,709	13,412	5,297
Ohio	8,535	6,970	1,565
East	14,829	9,302	5,527
Northern	11,421	10,735	686
Middle	6,189	4,993	1,196
Northwest	2,532	2,034	498
Tennessee	3,055	1,263	1,792
Kansas	600	300	200
Cumberland	10,751	7,939	2,812
Missouri	3,462	2,638	824
Virginia and North Carolina	5,344	4,283	1,061
Gulf	5,808	1,991	3,817
South	941	605	336
Arkansas	1,617	1,101	416
West Virginia	3,038	1,978	1,060
Total	118,057	83,409	34,648

The following report by Surgeon W. C. SPENCER, U. S. Army, describes the operations of the Medical Purveying Bureau, on which the various hospitals, field and general, depended for their supplies of medicines, hospital stores, instruments, dressings, books and stationery, bedding, etc.

The medical supplies of the Army were derived for many years prior to 1861 almost entirely from the Purveying Depot at New York City. All the military posts in the East and many of those in the South and on the Western frontier were supplied directly from that depot; but, for the purpose of securing the prompt distribution of stores to other points more difficult of access, several subdepots had been established in the South and West. Four of these were in existence in the year 1860, located respectively at New Orleans, La., San Antonio, Tex., Camp Floyd, Utah, and Albuquerque, N. M.

By the commencement of hostilities in the spring of 1861 great responsibility was suddenly thrown upon the Medical Bureau. The rapid organization of a large volunteer force taxed to the utmost the resources of a department compelled to act under circumstances of excessive embarrassment. The quantity of supplies at the principal depot was extremely small; the manufacture of articles peculiar to the military service involved unavoidable delay, while the funds at the command of the bureau were entirely inadequate to the emergency. Still, the urgent requirements of the troops were met with vigor and promptitude. The principal purveyor was directed to forward immediately to Washington large quantities of medicines, dressings, instruments and bedding; to cause necessary supplies to be prepared with all possible haste and to hold them in constant readiness. Subdepots were also at once established at Washington, D. C., St. Louis, Mo., and Cairo, Ill., in charge of experienced and efficient officers.

The regiments recently formed were with few exceptions well equipped. Many procured their medical outfit from the authorities of their respective states, many were supplied by the purveyors from the points already mentioned, while others proceeded to their destination with very imperfect provision for the sick and wounded, the result almost invariably either of the inexperience of their commanding and medical officers or of the urgency of the orders of the military authorities.

Additional purveying depots, as they became necessary, were established and liberally outfitted. Their location was determined by proximity to the main bodies of troops, facility of railroad and water transportation and the advantages of the market. As many as thirty of these were in active operation during the greater part of the war period.

In addition to the stores accumulated at the depots, supplies, especially adapted to meet the emergencies occasioned by severe engagements, were placed in charge of a medical officer detailed as a field purveyor. It was the duty of this officer to accompany the army upon its marches, to remain with it while in camp, to issue the reserve supply whenever it was needed, and to replenish it by timely requisitions upon the nearest depot.

By far the greater part of the purchases was made by the purveyors at New York and Philadelphia, and from them the supplies of the purveyors at the remaining points were derived either by means of requisitions approved by the Surgeon General, or through orders emanating directly from him. Purchases less in amount were made, however, at Washington, St. Louis, Cincinnati, Chicago, Louisville and other places, when suitable articles could be procured upon favorable terms. By means of duplicates of the bills of purchase forwarded at the date of each transaction the bureau was constantly informed of the state of the markets and enabled to regulate its purchases with advantage.

During the summer of 1861 a revised edition of the Regulations for the Army was prepared. This was promulgated August 10, 1861, and by it the Medical Supply Table was materially enlarged and improved. By Act of Congress, approved April 16, 1862, still greater latitude was given in the purchase and issue of medical stores. Section 5 of this act provided:

"That medical purveyors shall be charged, under the direction of the Surgeon General, with the selection and purchase of all medical supplies, including new standard preparations, and of all books, instruments, hospital stores, furniture and other articles required for the sick and wounded of the army. In all cases of emergency they may

provide such additional accommodations for the sick and wounded of the army, and may transport such medical supplies as circumstances may render necessary, under such regulations as may hereafter be established, and shall make prompt and immediate issues upon all special requisitions made upon them under such circumstances by medical officers; and the special requisitions shall consist simply of a list of the articles required, the quantity required, dated and signed by the medical officer requiring them."

The bureau promptly availed itself of the authority thus conveyed. On June 17, 1862, a board composed of Surgeon R. S. SATTERLEE, U. S. Army, Medical Purveyor at New York, Surgeon R. O. ABBOTT, U. S. Army, and E. R. SQUIBB, M. D., was convened at the city of New York for the purpose of incorporating in the existing Supply Table such improvements as were dictated by the experience of the war.

The report of the board was made on July 15, 1862. On the 20th of the succeeding October a circular to medical officers was issued by the Surgeon General containing the Revised Standard Supply Table and "Directions concerning the manner of obtaining and accounting for Medical and Hospital Supplies for the Army." The following extracts from these Directions are submitted:

"The standard of medical and hospital supplies for the Army is the following supply table. It is not the design of the Department to confine medical officers absolutely to that table, either in variety or quantity, but only to establish a standard for their guidance in making requisitions for supplies, leaving individual preferences to be indulged at the discretion of the Medical Director or the Surgeon General. Neither is it supposed that the quantities of the table will always meet the necessities of unusual emergencies, as during epidemics or in unhealthy seasons and localities; and medical officers who allow their supplies to be exhausted through any such contingencies, without timely notice of their approaching necessities, will be held to a strict accountability." * * * "Those articles of the standard supply table which are printed in italics will be furnished only on special requisitions approved by the Surgeon General." * * * "Articles of furniture and appliances in Class No. 2 will be issued on 'requisitions for outfits,' but not on 'requisitions to replenish supplies,' unless the medical officer certifies that they cannot be purchased with the hospital fund." * * * "Carbolic acid (Bower's), sulphate of iron, nitrate of lead, chlorinated lime or charcoal will be furnished as antiseptics or disinfectants, when required." * * * "Applications for microscopes by medical officers in charge of general hospitals will be favorably considered, provided the evidence be satisfactory that the officer will use the instrument for the benefit of science and will report the results of his observations to the Surgeon General."

This circular was reissued in substantially the same form on May 7, 1863. The only alterations of importance that were made in the table consisted in the omission of calomel and tartar emetic, the readjustment of the contents of the medical pannier and the substitution of medicine cases for the hospital knapsack.

The quantity and cost of the medicines, hospital stores, dressings, bedding and clothing required for the use of the troops had at this time become so great that the advisability of their preparation and manufacture by the department itself came under consideration. The advantages anticipated from the measure were:—the ability to ascertain in every instance the comparative purity of the wines, liquors, hospital stores and crude drugs offered to the department; the attainment of perfect purity and reliability in the medicines prepared; the securing of uniformity in the mode of putting up the supplies for issue and the saving to the Government of a great part of the profit made by the ordinary dealers.

Having determined upon the adoption of the proposed measure the department energetically proceeded to carry it into effect. Early in the spring of 1863 a laboratory was organized at Astoria, Long Island, in connection with the purveying depot at New York City; another was established at Philadelphia, Pa., to co-operate with the depot at that place. They were liberally furnished with suitable apparatus; well qualified medical officers were assigned to their supervision, and the preparation of supplies was at once commenced. A small laboratory was instituted at the same time at the purveying depot at St. Louis, Mo.; but its operations were confined principally to the putting up in packages adapted to reissue of medicines purchased in bulk and the manufacture of bedding and hospital clothing.

The results attained by these laboratories completely substantiated the correctness of the views which led to their establishment. An elaborate "Statement of the cost-price and market value of preparations manufactured and put up at the Army Laboratory at Philadelphia, Pa., since its commencement in March, 1863, to September 30, 1865," proved that the net financial gain to the Government during that period was \$766,019.32. A similar exhibit presented by the Superintendent of the Laboratory at Astoria indicated, as a consequence of its transactions for the six months ending November 30, 1864, savings which amounted to \$279,972.04. The savings at the laboratory at St. Louis from March 1, 1863, to July 31, 1863, were \$5,451.96.

During the progress of the war arrangements were made by the Medical Bureau with various contractors by which the delivery of ice to hospitals situated in the South and Southwest was secured. These hospitals were unable to procure the requisite supply from local dealers. The number of southern localities embraced in the contracts was materially increased in the years 1864 and 1865, and it was found advantageous to include many Northern and Western points. Large quantities of ice were also forwarded for the use of armies engaged in active hostilities. Instructions were issued by the Surgeon General by which its expenditure was regulated. The per diem allowance for each patient in hospital south of the latitude of Washington, D. C., was fixed at one pound, north of that latitude at half a pound. The ice procured in this manner during the years 1862, 1863, 1864 and 1865 amounted in the aggregate to 48,661 tons. The vast quantities purchased from the hospital funds by the general, post and regimental hospitals throughout the country are not included in this statement.

By an Act of Congress, approved July 16, 1862, an appropriation of \$15,000 was made for providing mutilated soldiers and seamen with artificial limbs. Subsequent expenses for the same object were included in the annual estimates for the Medical Department of the Army. On August 12, 1862, a Board convened in New York City, in com-

pliance with the instructions of the Surgeon General, to examine models of artificial limbs and to select the best for adoption. Similar boards were convoked afterwards for the purpose of enabling the Department to avail itself of the improvements made in apparatus of this character and to designate the prices that should be paid. Every soldier entitled to an artificial limb was permitted to choose from the specimens of approved models deposited in the office of the Medical Director at Department Headquarters the one with which he desired to be supplied. Upon examination of the records it is found that there were furnished to soldiers, at the expense of the United States during the period intervening between July 16, 1862, and May 4, 1867, 49 artificial eyes, 61 hands, 2,391 arms, 4,095 legs, 14 feet and 144 apparatus for resection.

The tabular statement which concludes this article is an exhibit of the quantity of certain of the supplies purchased and manufactured during the war by the Medical Department of the Army. It is presented not only on account of its intrinsic interest and value, but also as an evidence of the faithfulness, liberality and efficiency with which the Government provided, through its own agencies, for the welfare of the sick and wounded.

ARTICLES.	QUANTITY.	ARTICLES.	QUANTITY.
Acacie pulvis, in 1-lb. bottles.....oz.	869,070	Gelatine, shred, in 1-lb. packages.....lbs.	13,067
Acidum aceticum, in 1-lb. g. s. bottles.....oz.	353,477	Milk, concentrated, in 1-lb. tins.....lbs.	479,014
Acidum sulphuricum aromaticum.....oz.	395,708	Porter, in pint bottles.....bottles	1,833,948
Acidum tannicum, in 1-oz. bottles.....oz.	83,550	Tea, black, in tins or original chests.....lbs.	429,685
Acidum tartaricum, in 8-oz. bottles.....oz.	399,977	Tapioca, in tins.....lbs.	85,226
Ether fortior, in 1-lb. g. s. bottles and 1-lb. tins.....oz.	1,002,045	INSTRUMENTS.	
Etheris spiritus compositus, in 1-lb. g. s. bottles.....oz.	357,372	Amputating cases.....no.	360
Etheris spiritus nitrici, in 1-lb. g. s. bottles.....oz.	1,610,361	Amputating and trephining cases.....no.	235
Alcohol fortius, in 32-oz. bottles.....bottles	483,930	Compact field cases.....no.	3,955
Ammonie liquor, in 1-lb. g. s. bottles.....oz.	1,237,627	Electro-magnetic machines.....no.	20
Argentii nitras, in 1-oz. g. s. bottles.....oz.	42,185	Extracting cases.....no.	150
Argentii nitras fusus, in 1-oz. bottles.....oz.	35,818	General operating cases.....no.	596
Camphora, in 8-oz. bottles.....oz.	924,184	Minor operating cases.....no.	77
Coratum adipis (simple cerate), in 1-lb. pots.....lbs.	210,880	Personal instruments.....sets	273
Coratum resinae, in 1-lb. pots.....lbs.	51,040	Pocket cases.....no.	12,656
Chloroform.....oz.	1,140,982	Post-mortem cases.....no.	303
Creta preparata, in 1-lb. bottles.....oz.	243,048	Trephining cases.....no.	213
Extractum aconitii radialis fluidum, in 1-lb. bottles.....oz.	218,320	Tourniquets, field.....no.	50,214
Extractum belladonnae, in 1-oz. pots.....oz.	28,243	Tourniquets, screw, with pad.....no.	13,974
Extractum buchu fluidum, in 1-lb. bottles.....oz.	309,896	Trusses, inguinal, double.....no.	6,350
Extractum cinchonae fluidum (with aromatics).....oz.	618,957	Trusses, single.....no.	43,529
Extractum colocynthidis compositum, in 8-oz. pots.....oz.	188,030	DRESSINGS, Etc.	
Extractum conii, in 1-oz. pots.....oz.	13,624	Adhesive plaster, 5 yards in a can.....yds.	327,943
Extractum gentiane fluidum, in 1-lb. bottles.....oz.	347,173	Cotton bats.....no.	66,727
Extractum hyocyanami, in 1-oz. pots.....oz.	20,534	Cotton wadding.....sheets	73,225
Extractum ipecacuanhae fluidum, in 1-lb. bottles.....oz.	313,730	Flannel, red, all wool.....yds.	159,593
Extractum nucis vomicae, in 1-oz. pots.....oz.	11,989	Gutta-percha cloth.....yds.	106,011
Extractum pruni virginianae fluidum, in 1-lb. bottles.....oz.	307,323	Ichthyocolla plaster, 1 yd. in case.....yds.	224,767
Extractum rhei fluidum, in 1-lb. bottles.....oz.	258,000	Lint, patent, linen or flax.....lbs.	147,135
Extractum senega fluidum, in 1-lb. bottles.....oz.	315,633	Lint, picked or scraped, linen.....lbs.	82,754
Extractum valerianae fluidum, in 1-lb. bottles.....oz.	170,525	Muslin, bleached, unsized, 1 yd. wide.....yds.	3,512,442
Extractum zingiberis fluidum, in 1-lb. bottles.....oz.	506,380	Oiled muslin, in 41-yd. pieces.....yds.	72,210
Ferri chloridi tinctura, in 1-lb. g. s. bottles.....oz.	616,474	Oiled silk, in 41-yd. pieces.....yds.	61,702
Ferri iodidi syrupus, in 1-lb. g. s. bottles.....oz.	162,614	Roller bandages, assorted, in a pasteboard box.....doz.	668,817
Ferri et quinae citras, in 1-oz. bottles.....oz.	60,772	BEDDING.	
Ferri persulphatis liquor, in 4-oz. g. s. bottles.....oz.	130,997	Bed-sacks.....no.	522,246
Ferri persulphatis pulvis, in 1-oz. g. s. bottles.....oz.	153,741	Beds, water, of India rubber.....no.	1,144
Ferri sulphas, in 4-oz. bottles.....oz.	544,045	Blankets, white; gray for the field.....no.	1,165,805
Ferri pilulae, in 8-oz. pots.....oz.	277,808	Counterpanes, according to pattern.....no.	496,769
Hydrargyrum cum creta, in 1-lb. bottles.....oz.	69,278	Cushions, rubber, with open centre.....no.	6,480
Ipecacuanhae pulvis, in 1-lb. bottles.....oz.	328,029	Cushions, rubber, for air or water, small.....no.	11,724
Ipecacuanhae et opii pulvis, in 1-lb. bottles.....oz.	447,151	Gutta-percha bed-covers.....no.	39,651
Lint pulvis, in tins.....lbs.	415,926	Mattresses, hair, in two equal parts, to pack folded.....no.	75,920
Magnesia sulphas.....lbs.	515,828	Mattresses, of straw, moss or slucks.....no.	169,080
Morphia sulphas, in 4-oz. bottles.....oz.	27,200	Mosquito-bars, when specially required.....no.	221,058
Oleum ricini, in 32-oz. bottles.....oz.	220,334	Pillows, hair.....no.	367,513
Opil pulvis, in 1-lb. bottles.....oz.	552,196	Pillow-cases, cotton, colored.....no.	631,801
Opil tinctura, in 1-lb. bottles.....oz.	828,258	Pillow-cases, linen, white.....no.	418,365
Opil tinctura camphorata, in 1-lb. bottles.....oz.	993,311	Pillow-ticks.....no.	318,815
Pilulae opii, in g. s. bottles.....doz.	813,156	Sheets, linen.....no.	1,638,770
Potassa bitartras, in 1-lb. bottles.....oz.	556,488	FURNITURE AND APPLIANCES.	
Potassa chloras, in 1-lb. bottles.....oz.	568,923	Basins, tin, wash-hand.....no.	92,893
Potassii iodidum, in 1-lb. bottles.....oz.	531,744	Bed-pans, delf, shovel-shape.....no.	38,378
Quinae sulphas, compressed in 5-oz. tins.....oz.	595,644	Bedsteads, iron.....no.	274,704
Rhei pulvis, in 4-oz. bottles.....oz.	132,552	Close-stools.....no.	9,737
Scille syrupus, in 1-lb. bottles.....lbs.	183,582	Lanterns, glass.....no.	39,499
Sodae biclorinatæ liquor, in 1-lb. g. s. bottles.....lbs.	167,459	Medicine panniers, furnished by the list.....no.	5,830
Sodae bicarbonas, in 1-lb. bottles.....oz.	652,913	Medicine wagons.....no.	251
Sodae et potassa tartras, in 1-lb. bottles.....oz.	798,553	Meas-chests, furnished by list.....no.	3,954
Spiritus lavandulae compositus, in 1-lb. bottles.....oz.	404,117	Mugs, delf.....no.	247,993
Spiritus frumenti (whiskey), in 32-oz. bottles.....bottles	1,907,145	Pitchers, delf, half-gallon.....no.	35,433
Spiritus vini gallici, in 32-oz. bottles.....bottles	582,187	Plates, delf.....no.	472,022
Vinum album (sherry), in 32-oz. bottles.....bottles	736,459	Ranges, size as required, with fixtures complete.....no.	204
Zinci chloridi liquor, in 1-lb. g. s. bottles.....oz.	486,966	Spittoons.....no.	69,169
Zinci sulphas, in 1-oz. bottles.....oz.	92,805	Stoves, cooking, with fixtures complete.....no.	1,821
HOSPITAL STORES.			
Arrow root.....lbs.	62,226		
Beef, extract of, in 2-lb. tins.....lbs.	570,980		
Cocoa, or chocolate, in tins or cakes.....lbs.	129,596		
Coffee, extract of, in 1-gal. tins.....galls.	23,317		
Corn-starch, in 1-lb. papers.....lbs.	218,708		
Farina, in 1-lb. papers.....lbs.	251,837		

BUILDING
EARLY AMERICA

*Contributions toward the History of a
Great Industry*

THE CARPENTERS' COMPANY
OF THE
CITY AND COUNTY OF PHILADELPHIA

CHARLES E. PETERSON, *Editor*

CHILTON BOOK COMPANY
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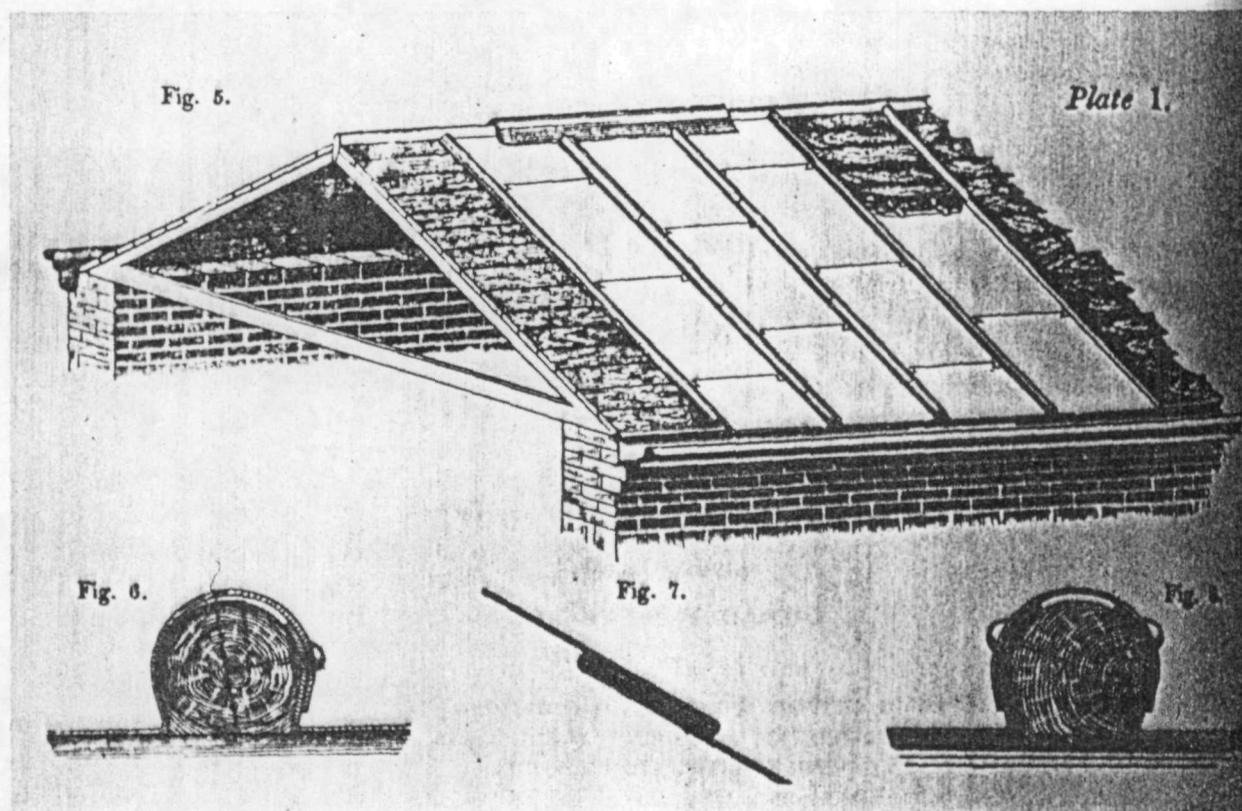


Fig. 8.9 Illustration from Marshall Lefferts and Brother catalog of 1854, showing roof of plain galvanized iron sheets laid with standing seams over wood rolls. From "Patent Galvanized Iron . . ." (New York: William C. Bryant and Co., 1854).

came into use as a roofing material just before the Revolution. The new roof of the New York City Hall, put on about 1763 or 1764, was covered with rolled copper ordered from Bristol, England. The lantern of the Sandy Hook lighthouse was soon roofed with the same material. About 1774 the Maryland State House in Annapolis was covered with copper. It was followed by the First Bank of the United States in Philadelphia (1796) and Bulfinch's State House dome in Boston (1802). But except for minor uses, such as flashings and downspouts, copper did not come into common architectural use until well into the nineteenth century with the development of the Lake Superior mines.⁵¹

COMPOSITION ROOFING

Along with the upsurge of interest in pitched roofs of complex forms during the

mid-nineteenth century, there was increasingly widespread use of flat roofs, especially for commercial blocks, rows of townhouses, and industrial complexes. Board and shingles were used on roof flats but they warped and leaked. Later, various sheet metals were used. The problem inherent in both of these systems was the small size of the pieces or sheets, which resulted in a large number of cracks or seams where water could seep through. What was needed to alleviate this problem was a type of roofing that had fewer seams and would approach the ideal of a one-piece continuous membrane. These requirements led to the development of composition or built-up roofing.

Usually composition roofing, as built-up roofing was generally termed during the nineteenth century, consisted of pieces of cloth, felt, or paper that were first saturated with a tar-like substance and then nailed to the roof.

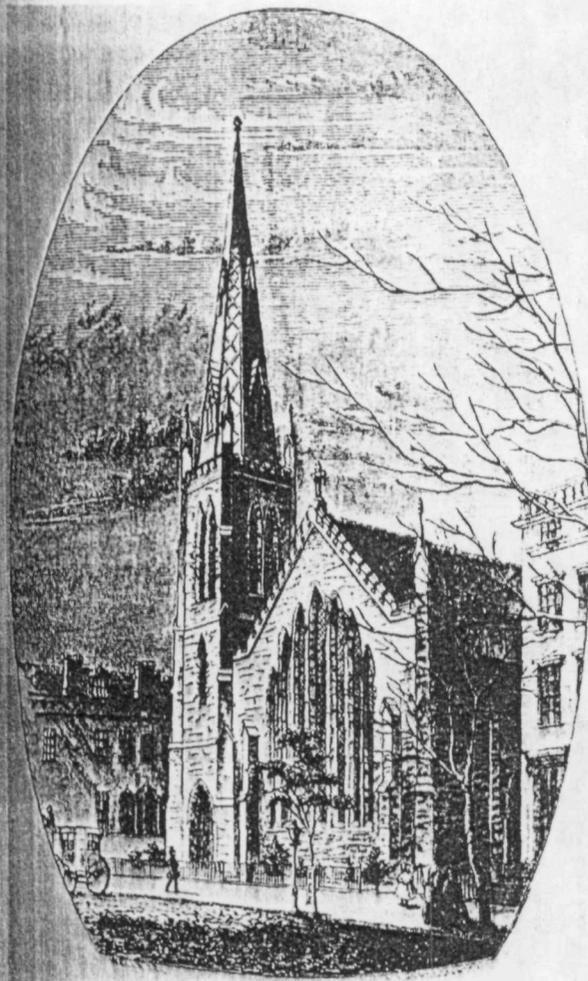


Fig. 8.10 Church of the Annunciation, New York City. Galvanized sheet metal was used for covering the entire roof, as well as for the spire, the cross and the battlements of the front gable. From *Putnam's Monthly*, Vol. 2 (September, 1853) p. 244.

The whole roof was then coated with more of the viscous substance. Sometimes it consisted of several of these layers and was usually finished off with a coat of sand or gravel.

During the nineteenth century, there was considerable experimentation with the two key elements of this roofing material—the fiber membrane and the cementitious substance. Ship sheathing paper was used, as was stout canvas, felt, burlap, pasteboard, and even woven strips of paper or twine. Initially these materials were applied as individual sheets; often they had first been dipped by hand into the tar or whatever viscous substance was being used, sheet by sheet, and

then the excess tar pressed out. An important advance came when the felt became available in long rolls and could be impregnated by machines.

There was even more experimentation with the viscous or cementitious substances. In Europe, considerable interest developed in using natural rock asphalt for this purpose. This asphalt could also be used for paving. Another form—the type that oozes up through the earth in natural seepages—was used in Los Angeles for waterproofing the roofs of adobe houses during the early nineteenth century and perhaps earlier.⁵² Pine pitch or tar and gravel had been used in Europe as early as 1772 and in America shortly after the Revolution. In Newark, New Jersey, during the 1840s, pine pitch was being used to coat roofs covered with canvas and it was reported that this technique had been used even earlier in Boston.⁵³ Canvas was used on the roof of the porch of the Commandant's house at Sackett's Harbor, New York, in the 1850s.⁵⁴

What was to become one of the leading American companies dealing in composition roofing placed an advertisement in the Cincinnati city directory in 1853, mentioning an important material that had just recently appeared in the roofing picture—coal tar. It was a byproduct of the manufacture of illuminating gas, produced by burning coal. Before the discovery of aniline dyes in 1856, coal tar was considered a nuisance by the gas manufacturers and they were forced to pay to have it carted away. This the Warrens did, and found the coal tar more economical than the pine pitch used previously.

The Warrens were an interesting family: two brothers, Samuel M. and Cyrus M., began the business in Cincinnati (Fig. 8.11). Three other brothers and a sister's husband later joined the business, and taking advantage of their number, expanded their operations to many of the leading cities—New York, Brooklyn, Boston, Philadelphia, St. Louis, Louisville, and Buffalo. The Philadelphia firm of Drexel & Company had the flat roof of their new banking house (built in 1854) covered with Warren roofing (Fig. 8.12). Three years later,

DIANA S. WAITE

S. M. & C. M. WARREN,
 MANUFACTURERS AND DEALERS IN

COMPOSITION ROOFING
MATERIALS,
 NORTH SIDE PEARL ST., BETWEEN VINE AND RACE,
 CINCINNATI, O.

Tarred Paper and Felt, (saturated either with Carolina or Coal Tar,) Composition in barrels, and all other articles used in manufacturing these roofs constantly on hand, and for sale at the **lowest prices**. All articles of best quality. Printed Directions for putting on roofs furnished with materials.

Fig. 8.11 Early advertisement for the S. M. and C. M. Warren firm, which manufactured composition roofing materials. From Cincinnati city directory, 1853, p. 350.



the firm endorsed the product, stating that they "so far have had no reason to doubt its efficacy and durability, nor regret having used it, and should in building hereafter prefer it to any other roofing."⁵⁵

The Warrens were constantly on the lookout for ways to improve their product. An important advance was made by Cyrus M. Warren, who invented a process of fractional distillation that was applied to coal tar. Distilled coal tar was quickly recognized as being far superior to the crude coal tar previously used.

Of course the Warrens were not the only ones to be aware of coal tar and composition roofs. In fact, the American patent office was so flooded with applications for new roofing and paving compounds that finally a digest of those patents granted up through 1875 was published.⁵⁶

The story of composition roofing is thus one of experimentation and of a constant search for new and better materials—the very qualities that are also characteristic of the history of American roofing as a whole. With virtually every material there was a constant attempt to improve or expedite its manufacture and its

Fig. 8.12 The Drexel Building, Philadelphia, built in 1854. The flat roof of the building was covered with the Warrens' "Fire and Water-Proof Roofing." (Artist's copy from the Baxter street directory in the Dreer Collection; n.d., Historical Society of Pennsylvania)

installation; there was also a constant search for new materials. As much experimentation was occurring with roofing as with any other aspect of building construction, perhaps even more.

Especially important were the technological advances made in shingle manufacture, in sheet metal fabrication, and in composition roofings. With many of these materials, there was also a slow but steady movement away from imported materials. But while these technological changes may also have helped create products that were cheaper in price and more readily available, quality was sometimes

compromised. As early as 1847, for instance, warnings were published about the deficiencies of sawn shingles. The tinplate industry underwent many changes and so-called refinements, but the late nineteenth-century literature is filled with references to the good, "old-time" tinplate.

But no matter what technological advances were made with the roofing materials, the success of any one material rested largely upon the integrity of the roofer himself: the best material was only as good as the workmanship that went into the roof. The craftsman in every age has played a critical role.

NOTES

1. Because of space limitations, it is not possible to discuss the many materials in much detail. For general discussions of roofing materials, see Ernest G. Blake, *Roof Coverings, Their Manufacture and Application* (New York, 1925) and the *Bulletin of the Association for Preservation Technology*, Vol II (Nos. 1-2, 1970), a special edition devoted to historic types of roofing.
2. E. B. O'Callaghan, comp. and trans., *Laws and Ordinances of New Netherland, 1638-1674* (Albany, 1868), p. 82.
3. Fiske Kimball, *Domestic Architecture of the American Colonies and the Early Republic* (New York, 1966) pp. 24-25.
4. In 1631, for example, Governor Thomas Dudley of Massachusetts wrote that "noe man shall build his chimney with wood, nor cover his house with thatch" ("Boston Building Ordinances, 1631-1714", *Journal of the Society of Architectural Historians*, Vol XX [May, 1961] p. 90). Similarly, in New Amsterdam in 1656, Director General Peter Stuyvesant and the council decreed that no houses were henceforth to "be roofed with straw or reeds" (I. N. Phelps Stokes, *The Iconography of Manhattan Island*, Vol IV [New York, 1922] p. 163).
5. As late as 1873 John Bullock in *The American Cottage Builder* (Philadelphia, 1873, p. 51 ff) remarked that thatch was "admirably adapted . . . for the humble kind of dwellings" but noted that it was then falling into disuse.
6. In January, 1630, Kiliaen Van Rensselaer expressed his intent to build a tile and brick yard in Rensselaerwyck. From A. J. F. Van Laer (ed.), *Van Rensselaer Bowier Manuscripts*, (Albany: 1908), p. 160. Paul R. Huey supplied this reference.
7. The provincial council, for example, extended the time for covering William Pietersen de Groot's house in New Amsterdam until tiles could be received from Holland or Fort Orange. Quoted in I. N. P. Stokes, *The Iconography of Manhattan Island*, Vol IV (New York, 1922) p. 188.
8. While it has not been definitely established that the tiles excavated at Fort Orange were actually made near Albany, they are composed of the red clay which is characteristic of that area and which is very similar to the clay used in the bricks of the house, which may have been burned locally. A neutron activation analysis of clay samples is scheduled to be carried out shortly to determine the source of the clay used in the bricks and the tile. Excavations carried out at Fort Orange and other Dutch sites in the Albany area have yielded only pan tile and no plain—or flat—tile.
9. Rita Susswein Gottesman, *The Arts and Crafts in New York, 1726-1776* (New York, 1938) pp. 84, 187-8, 191.
10. Rita Susswein Gottesman, *The Arts and Crafts in New York 1800-1804*, (New York, 1965) p. 201.
11. Jean Carl Harrington, "Early Brick-making, Roanoke Island, North Carolina, 1585," *Journal of the Society of Architectural Historians*, Vol XXV, No. 4 (December, 1966) pp. 301-302. Henry Chandlee Forman, *The Architecture of the Old South*, (Cambridge, 1948). Examples recorded at Jamestown during the excavations of the 1930s may be seen in the HABS records at the Library of Congress.—Ed.
12. "On the Comparative Expense of Covering the Roofs of Houses with Different Materials," *Journal of the Franklin Institute*, Vol. X (October, 1830) p. 256.
13. Ironically, the break was so complete that by the 1850s the designers of the popular Italian villas found themselves in an odd predicament. While they were able to accommodate most other parts of this type of structure to the American situation, the need for a richly textured, high relief roof covering in a non-tile producing country presented problems. The answer for many such villas was tinplate roofing, laid on with boldly rendered standing seams. In the late nineteenth and early twentieth centuries the manufacture of roofing tile in America was revived, and tile was often used for its striking architectural effect.
14. Horatio Gates Spafford, *A Gazetteer of the State of New-York* (Albany, 1813) p. 119.
15. The roofs of both houses were later covered with sheet metal.
16. Marcus Whiffen, *The Eighteenth Century Houses of Williamsburg* (New York, 1970) pp. 68-70.
17. Since the house was not being well maintained at the time of this view (1834), it is believed that the roofing dates from the eighteenth century.
18. A. J. Downing, for example, noted that "some character is given to the roof . . . by employing shingles of a uniform size, and rounding the lower ends before laying them on the roof", in *Cottage Residences, Rural Architecture & Landscape Gardening* (Watkins Glen, N. Y., Library of Victorian Culture), a reprint of the 1842 edition.

A View of Point Lookout Prison Camp for Confederates

Editorial note: This lesson plan and the one that follows it may be used in conjunction to compare and contrast the prison camps at Point Lookout, Maryland and Andersonville, Georgia.

Introduction

On 13 December 1863, Private C. W. Jones, Company H, 24th Virginia Cavalry, was captured at Charles City Courthouse, Virginia, following a fierce engagement with General Sheridan's Union cavalry. Within a week after his capture, Jones and other Confederate prisoners boarded a transport steamship at Norfolk headed for "a point of land where the Potomac River empties into the Chesapeake Bay, where it seemed that nature formed it especially for a prison camp," as he wrote in his privately printed memoir. His destination was Point Lookout, Maryland, the prisoner-of-war camp that housed the largest total number of captives during the Civil War.

Background

Point Lookout is located at the southern tip of the western shore of the Chesapeake Bay in Maryland, bordered on the west by the Potomac River and on the east by the bay. Before becoming a prison camp, the site was home to a lighthouse erected in 1830, shown at the lower left of the featured document. It became a seaside resort by 1859, complete with wharf, hotel, and cottages. The lithograph shows a wharf, with docked steamboats, on the Potomac River side of the point; the hotel is the columned building immediately to the left of the twin rails on the beach leading to the Chesapeake Bay. Numerous cottages are also visible in the document. When war broke out, the U.S. government leased the property when the resort owner, whose business had diminished, offered it for a military hospital site.

Union Captain L. C. Edwards, Assistant Quartermaster, was sent to Point Lookout to develop the hospital site. Upon his arrival on 9 July 1862, he found the wharf, hotel, and over one hundred cottages but no outbuildings. He ordered the construction of a small dining room, laundry, warehouses, and stables. Ten days later he received orders to build Hammond General Hospital, a compound of sixteen buildings erected on piles driven into the sandy soil.

Hammond General Hospital was composed of fifteen wards,

each 175 by 25 feet, and a larger administration building with space for linen and other stores, forming a circle arranged like spokes in a wheel. An eight-foot-wide circular roofed corridor connected these buildings. In the center of the circle were four buildings, each 77 by 25 feet, which served as the chapel (the west building), "half diet" kitchen for the patients who required less than a "full diet" (the north building), library/reading room (the east building), and a knapsack and baggage room (the south building). Nine members of the Sisters of Charity order, whose cottage is visible on the diagonal path leading to the bay just below the hotel building, operated the "half diet" kitchen and storage areas.

The hospital received its first Union Army patients on 17 August 1862, when a steamer unloaded more than 300 sick and wounded troops. While the men were disembarking, the wharf collapsed but no lives were lost. Union forces built a new wharf and began a new 1,000-seat dining room, with a kitchen jutting south at its center. In early 1863, a small number of Confederate prisoners, most of whom were from southern Maryland, were confined on the hospital grounds, accused of aiding and abetting the Confederacy.

Following the Battle of Gettysburg in July of 1863, the federal government established a prisoner-of-war depot at Point Lookout. Originally designed to hold 10,000 prisoners, the depot housed prisoners in old tents, rather than wooden barracks. Both Col. William Hoffman, the Commissary General of Prisoners, and Brig. Gen. Gilman Marston, the camp commander and commander of the newly formed St. Mary's County Military District (in which Point Lookout lay), advised against using these tents. The prison pen area, roughly a 1,000-square-foot enclosure on approximately 23 acres, appears in the upper right of the lithograph. The entrance gate is at the southwest corner of the pen. The smaller rectangle immediately below the pen area is the Confederate officers' camp. Because Point Lookout was used primarily for enlisted men, the size of the latter area was reduced in order to increase the size of the main pen area. A boundary fence that separated the prison grounds from the hospital grounds is discernible in the clearing just below the stand of trees.

Although between 8,000 and 10,000 Confederates were wounded at Gettysburg, Hammond General Hospital had only 1,400 beds when the prison was established. Convalescing Union soldiers in

the hospital were removed to Baltimore to make room for the most seriously wounded Confederate soldiers. By September of 1863, more than 4,000 prisoners had arrived at Point Lookout (officially known as Camp Hoffman but rarely referred to by that name). The prisoner population reached its peak of more than 20,000 in June 1864.

It is important to note that Point Lookout was in an area of Maryland with strong Southern sympathies, a fact that concerned the Union soldiers stationed there. Most of the southern Marylanders engaged in the Civil War fought for the Confederacy. The presence of black Union troops at the camp further heightened the tension.

Life at Point Lookout

Private Jones was one of 52,264 Confederate prisoners housed at the Point Lookout prison camp between mid-August 1863, when

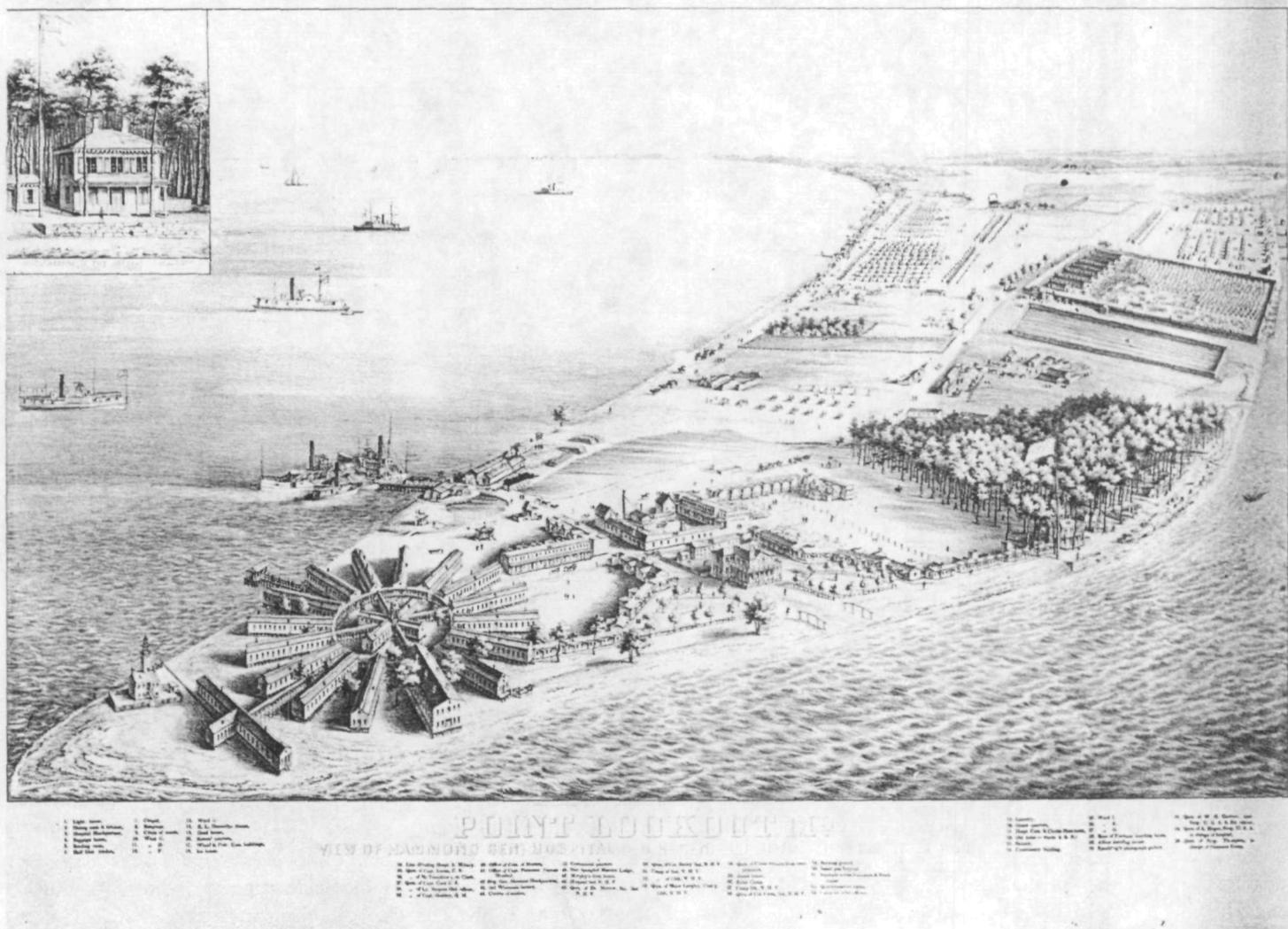
the first large group arrived, and July 1865, when the last prisoner was released. In his memoir, he described his impressions of the camp:

After a day and night passage in the hull of an old transport from Norfolk we landed. While I was but a lad and unused to the hardships of the army and other vicissitudes, I stood the trip better than old and bigger Confederates. Our entrance into prison made a weird impression on my youthful mind. The first . . . scene presented to our view was a pile of coffins for dead rebels. The next direful sign was "Prison Camp," in the large circle over the prison gate.

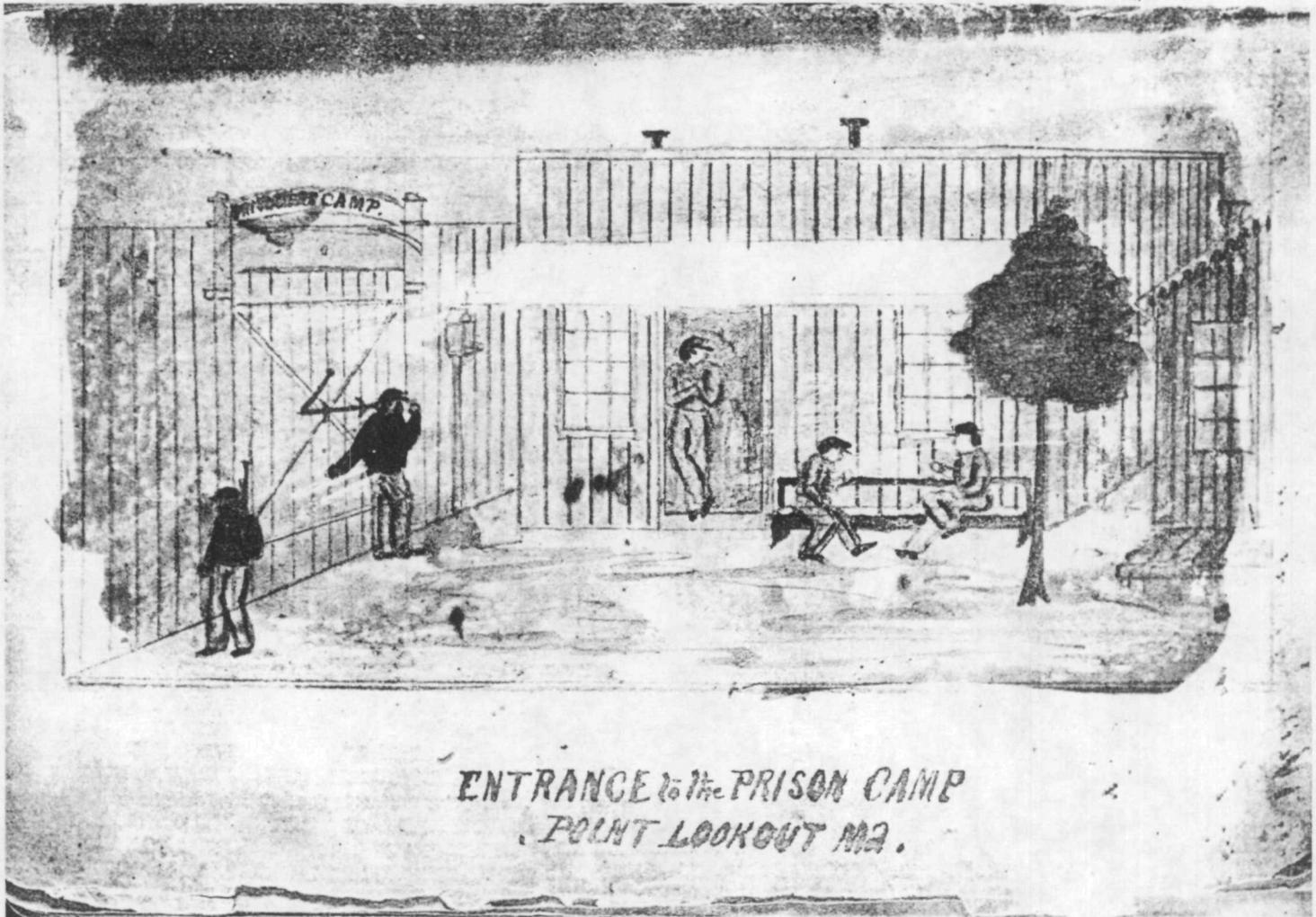
In the lithograph, the small building just south of, and some distance removed from, the wharf and commissary buildings is the "Dead House," where dead prisoners were kept prior to burial. This is probably where Jones saw the stacked coffins.

A reporter's visit to the prison camp is recounted in the 6 May

National Archives



An aerial view of the Point Lookout Prison Camp shows the original Hammond General Hospital buildings arranged like the spokes of a wagon wheel.



Imprisoned soldiers' watercolor sketches can help students visualize life inside Civil War prison camps. Several examples are reproduced on the following pages.

1864, *New York Herald*. He reported that upon entering the pen, "one sees . . . a confused mass of tents and houses, and men hurrying to and fro, and hears a medley of sounds not unlike the hum of a city business street. . . . The camp is kept dry and clean by means of numerous ditches and sewers, all emptying into the bay." Upon passing through the gate into the pen, prisoners first saw a row of eight buildings. The smallest building, nearest the gate, was the commissary storehouse. Six cook and mess houses, each 30- by 160-feet, accommodated five hundred inmates per building. The eighth building was used as a schoolhouse, where prisoners sought constructive relief from the boredom of prison life by engaging in such activities as musical productions and debates; the study of English grammar, natural philosophy, modern and ancient geography, history, geometry, bookkeeping, algebra, and Latin; and classes in reading, writing, and vocabulary.

The prisoners were not always kept within the walled confines of the pen, and Private Jones described some of their "outside" activities in his memoir:

The prisoner's [sic] through the very great kindness of the commandants were allowed to go outside the camp on details to cut wood, whitewash buildings, and unload boats. . . . They were allowed the liberty of congregating on the shore of the Chesapeake outside the prison camp for recreation and exercise between the hours of 9 and 2. The conglomerated mass of lousy, ragged and hungry rebels was a sight to behold, especially in the winter days, when they could bask in the sun.

From the bay shoreline the prisoners were also allowed to supplement their meager food rations by fishing, clamming, and crabbing in the bay.

Among the "lousy, ragged and hungry rebels" was American poet Sidney Lanier who recorded his experiences in a novel entitled *Tiger Lilies* (1867). Point Lookout also held several women prisoners, including two blockade runners (who were quickly transferred to the Old Capitol Prison in Washington, D.C.), and Private Jane A. Perkins, who was separately housed in a small tent for three months.

Winters were especially harsh for the prisoners. From the time the prison camp opened, the inmates went without adequate blankets, clothing, and housing. Many of the approximately 4,000 prisoners who died at Point Lookout froze to death. Blankets were always in short supply, and the prisoners slept closely together to combat the cold, often clasping a hand over the exposed calf or shoulder of a comrade. Their clothing was usually tattered and torn, and they sometimes lacked pants. At one point the Quartermaster Department filled requisitions for prisoners' pants from surplus stocks of regulation U.S. Army blues, but Provost Marshal A. G. Brady refused to distribute them because the blue pants might aid prisoner escapes. From October 1864 through February 1865, Major Brady relentlessly complained to Brig. Gen. James Barnes, who succeeded Marston as camp commander, about the pantless condition of his prisoners and the ceaseless need for shoes, socks, drawers, shirts, blankets, tents, and clean water. Private Jones called Major Brady "an excellent, brave and good soldier" and Brigadier General Barnes "a hero and all round [*sic*], kind, benevolent comrade."

The poor condition of the tents which housed most Confederates compounded the effects of inadequate blankets and clothing. A report rendered as winter approached in 1864 indicated that fully one-third of the tents housing prisoners were unfit for use and that none provided noticeable protection against the wind blowing in off the water. In an effort to provide some relief, the prisoners made

brick fireplaces for most of the tents. Although prison officials did not permit the prisoners to cut down trees to use as firewood, the Confederates were allowed to go out in squads each day and gather what remnants they could salvage from areas where trees were felled, and the tents were often filled with smoke from the unseasoned wood. When permitted by camp officials, prisoners built shanties using wood from cracker boxes.

As winter turned to spring, the warmth and gentle breeze brought respite. Soon, however, the temperate climate turned brutal as the relentless summer sun baked the prisoners' skin and the ground around them. Many prisoners suffered temporary blindness during the evening twilight after a day spent squinting through the glare from the water, sand, and white tents and buildings. Because they were often without shoes, walking in the unshaded sand or clay soil was often excruciating.

The parched conditions of summer at the point brought the need for adequate water supplies to the forefront. Although the prisoners were surrounded by water, little was available for drinking. The potable water at Point Lookout was brackish and in short supply. Camp officials brought in condensers that were capable of producing 17,000 gallons of potable water per day, but it seemed there was never enough.

The handling of bodily waste from thousands of prisoners also presented a constant challenge. The prisoners built "sinks" for

Maryland State Park Foundation



Prisoners cook house - Point Lookout - Md

To supplement meager food rations, which were distributed at the prison's cook house, many prisoners went fishing, clamming, and crabbing in the Bay.

defecation and urination on piers out over the bay. These facilities were accessible by narrow passages through the east wall of the pen. The prisoners also used holes created throughout the camp to excavate clay for bricks. These were not always covered over or limed when filled and in fact, many of the tents were pitched over lightly covered old sinks. The prisoners also used "night boxes," sand-filled containers into which they relieved themselves. There was a perpetual shortage of boxes; those provided by camp authorities were ill maintained and sometimes not used at all. One report stated: "They void their excrement in the most convenient place to them, regardless of the comfort of others."

The filthy conditions of the camp and the general uncleanliness of the prisoners raised concern for their well-being. It must be recalled that doctors of the time had no understanding of the correlation between filthy conditions that today would be termed "unsanitary," and the spread of disease. Nevertheless, the prisoners' condition received attention. In November of 1863 W. F. Swalm made an inspection of the prisoners' medical and general condition and sent a searing report to the Associate Secretary of the Sanitary Commission, Dr. J. H. Douglas. (The report is published in *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies*, ser. II, vol. 6, pp. 575-581). Swalm's report was so explicit about the terrible conditions in the camp that Union leaders made efforts to suppress it. As word spread about the situation at Point Lookout, however, Southern sympathizers from Maryland attempted to deliver food and clothing to the prisoners.

The Swalm report stated that the prisoners were "in a filthy condition; faces and hands apparently strangers to soap and water and hair seemingly uncombed for weeks." He noted the eighteen hospital tents arranged in two rows at the southern end of the pen. The most prevalent disease was chronic diarrhea, although typhoid, scurvy, and smallpox were also present. A smallpox hospital was established about one quarter mile north of the prison compound. That facility is visible in the lithograph, located in the distant pine trees at the top center of the peninsula. Prisoners with any life-threatening condition other than smallpox were moved to Hammond General Hospital at the rate of twenty to thirty per day. Swalm reported: "The dispensary is a poor apology for one, having little or nothing but a few empty bottles. Not a particle of oil or salts, in fact, a cathartic of no kind. About half a dram of opium, half pound of sulph-ether, half pound of simple cerate, and a few other things constitute the whole supply." The dispensary is barely visible in the stand of trees just below the flag on the large flagpole.

According to Swalm, the most "complaint and suffering" existed in the tent quarters area. "Men of all ages and classes, descriptions and hues, with various colored clothing, all huddled together, forming a motley crew, which to be appreciated must be seen, and what the pen fails to describe the imagination must depict." Nevertheless, he described more:

[The prisoners were] ragged and dirty and very thinly clad; that is, the very great majority. Occasionally you will find one the fortunate possessor of an overcoat, either a citizen's or the light-blue ones used by our infantry, and these serve as

coverings for the rags beneath. Others, again, are well supplied as regards underclothing, especially those who are from Baltimore, being sent to them by friends. But the great mass are in a pitiable condition, destitute of nearly everything. . . . Some are without shirts, or what were once shirts are now hanging in shreds from their shoulders. In others the entire back or front will be gone, while again in some you will see a futile attempt at patching.

At long last for Private Jones, the day came when he and others captured at about the same time were told they would soon be paroled. In the latter part of February 1865, and after nearly two years of suffering and torment we were at last ordered to forward march in single file down to the wharf on the Potomac river, where the happy sight of the New York truce boat, with her outstretched gang plank to welcome and bid us enter, greeted our tired eyes and worn out frames. We went aboard cheerfully, with a sigh of great relief and without the glittering bayonets to "move us lively." After all were aboard the boat with its load of dirty and worn out paroled prisoners, we gave one old-fashion[ed] "rebel yell" and joined with one accord in "Dixie."

Postwar Point Lookout

When the war concluded, the camp was dismantled, the lease terminated, and the prison and hospital grounds abandoned. The hotel reopened, but the horrific memories of the war and prison conditions were fresh in the minds of the people of southern Maryland, and few of them used the site for recreational purposes. Many others could not afford the trip because of financial reversals suffered during the war.

Over the years, war and prison camp memories faded, and the hotel enjoyed a resurgence of activity until it burned in about 1878. Shortly thereafter, Congress authorized the erection of a Coast Guard station at the point. A severe storm demolished the compound in 1908, but it was reconstructed. Following repeated damage by storms and ice between 1903 and 1942, government authorities frequently rebuilt the wharf. Businessmen made another attempt in the 1920s to operate Point Lookout as a resort. They built a hotel close to the extreme end of the point, but it failed. In 1937 the Coast Guard station ceased operation; it was abandoned in 1948. In 1968 an automatic light replaced the Point Lookout Light Station, the last remaining link to the site's past.

In 1962, the state of Maryland purchased nearly 500 acres at Point Lookout to establish a recreational park for campers. Today the park features a museum that includes a historical exhibit about its Civil War past. A national cemetery holds the remains of 3,389 Confederate dead, bearing silent testimony to the pain and suffering of those once imprisoned on the point. The cemetery has been relocated twice because of water erosion. Artifacts such as uniform buttons and buckles, minie and musket balls, gun parts, and clay pipes still wash ashore as if the timeless waves beckon visitors to remember the Confederate prisoners who stood where they stood, and heard the pounding surf at Point Lookout.

Teaching Suggestions

1. Distribute electrostatic copies of the Point Lookout lithograph to your students. Discuss with them how a lithograph is made.
2. Ask your students to fold their copy in half twice, dividing the document into quadrants. Divide your students into four groups, and assign a quadrant to each group. Tell your students that they are to assume the role of intelligence officers who are to analyze their quadrant of the lithograph as if it were a present-day spy satellite image of a site holding strategic importance. Their task is to identify what they see, attempt to ascertain the purpose of the site, and interpret evident activity. Give them several minutes to scrutinize the document and discuss it in their groups. You may wish to provide magnifiers to assist their "detective" work. It is possible to identify most of the elements depicted in the lithograph using the enlarged key contained in the Beitzell book cited below. When you end the discussion period, ask a volunteer to locate Point Lookout on a modern map.
3. After conducting activity number two, ask for volunteers from each group to report orally their group's findings and conclusions. Then lead a discussion about the prison camp based on the information contained in the article, your own knowledge,

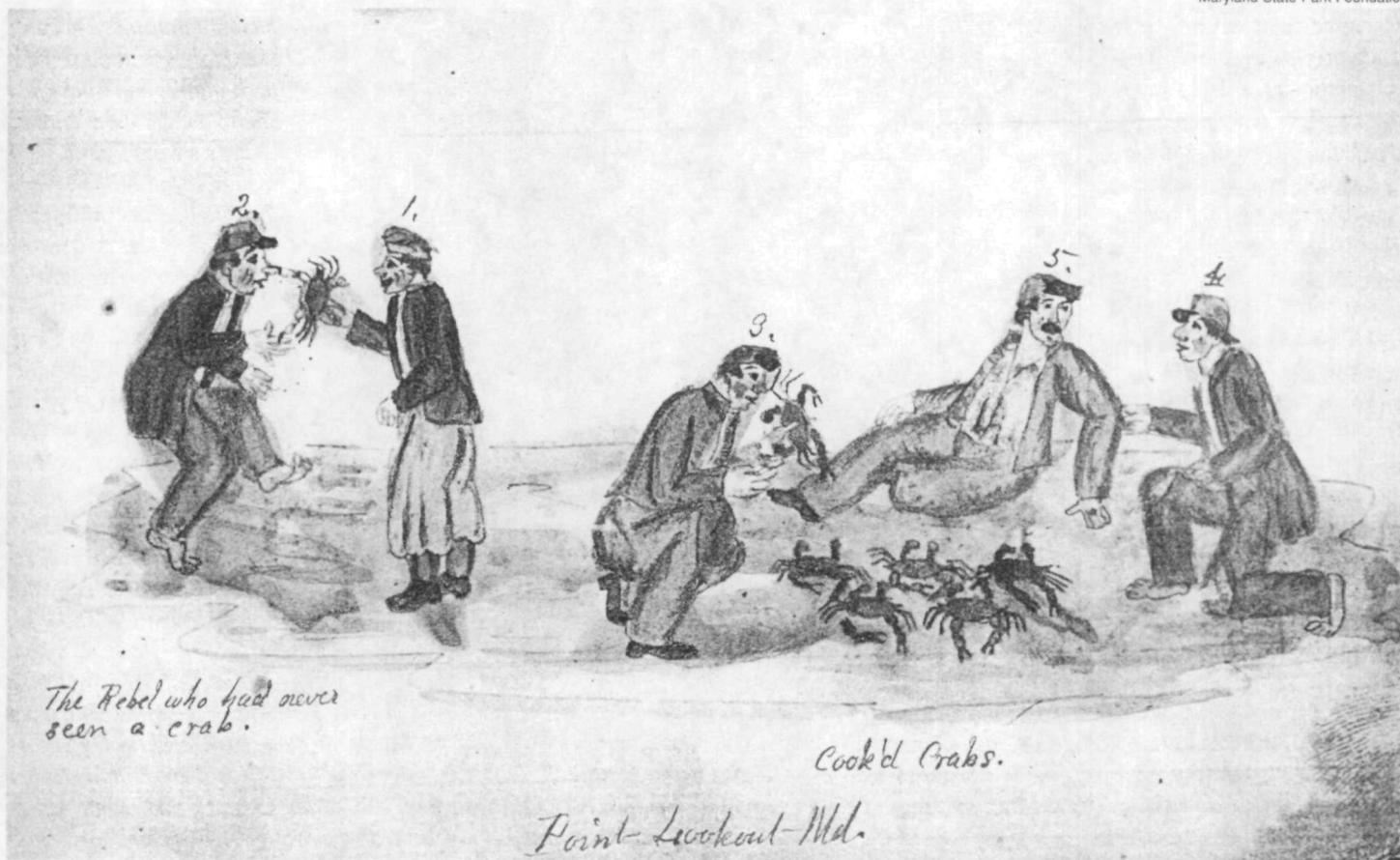
or added information provided by the sources cited below. If you use this lesson plan in conjunction with the one on Andersonville, ask your students to evaluate the similarities and differences between the conditions for prisoners at Andersonville and Point Lookout.

4. Discuss with your students the benefits and problems associated with a prison surrounded by water. Ask a group of volunteers or selected students to prepare and execute a report or exhibit about Point Lookout or other Civil War prisons surrounded by water such as Johnson's Island, Ohio, and Belle Isle, Virginia.
5. Ask your students to judge why Point Lookout is not as well known as Andersonville, even though the camp at the point held the largest total number of prisoners of any Civil War prison. Why was it not chosen as the national prisoner-of-war memorial site? □

Selected Sources

- Beitzell, Edwin W. *Point Lookout Prison Camp For Confederates*. N.p. 1991 (4th printing). Contains excellent background information and transcripts or summaries of many primary sources.
- Hesseltine, William B. *Civil War Prisons*. Kent, OH: Kent State

Maryland State Park Foundation



Cramped accommodations, lack of clothing, and frightful sanitary conditions usually posed more of a threat to imprisoned soldiers than the crabs found in Chesapeake Bay.

University Press, 1962. The standard work on Civil War prisons.

Maryland State Park Foundation, Inc. *Sketches from Prison: A Confederate Artist's Record of Life at Point Lookout Prisoner-of-War Camp, 1863-1865*. Baltimore: Maryland State Park Foundation, Inc., 1990. This facsimile publication relates the history of the Point Lookout sketchbook, four versions of which are extant.

National Archives and Records Administration. *Selected Records of the War Department Relating to Confederate Prisoners of War, 1861-1865*. Microfilm publication number M598, 145 rolls.

Beitzell, cited above, gives specific citations in various endnotes to particular rolls of microfilm that contain Point Lookout primary sources. Microfilm rolls may be purchased from the National Archives at \$23 each by sending a check payable to NATFB, P.O. Box 100793, Atlanta, Georgia 30384.

The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies. 1899. Reprint. Harrisburg, PA: National Historical Society, 1971.

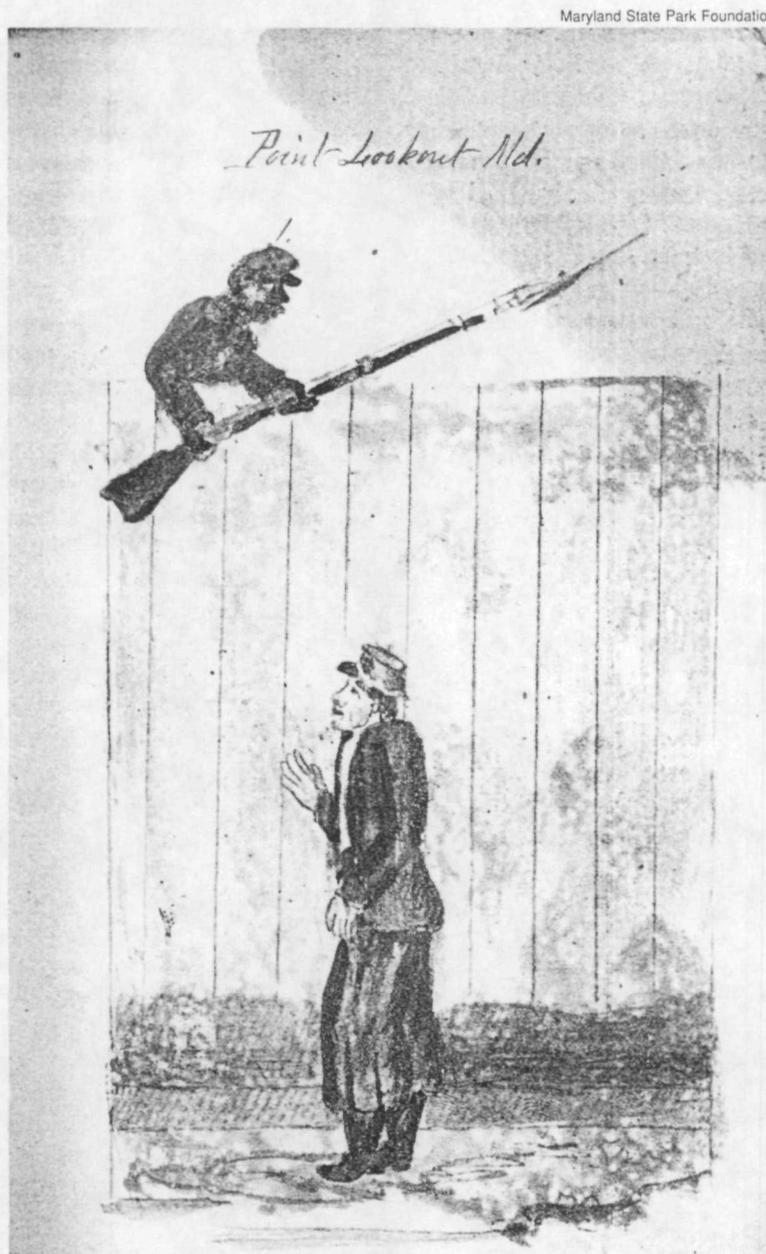
Series II, volume 6, contains many documents related to Point Lookout. Beitzell, with some inaccuracy, cites several other volumes.

Richard A. Blondo is an education specialist at the National Archives, Washington, D.C.

Editorial note: This primary source document lesson features a lithograph of Point Lookout made in late 1863 or early 1864. The color original is found in the Still Picture Branch of the National Archives in Washington, DC, in Record Group 92, Records of the

Office of the Quartermaster General, U.S. Army (black-and-white copy negative number 77-HZ-214R). The accompanying illustrations are from a watercolor sketchbook done by one of the Point Lookout prisoners and are provided through the cooperation of the Maryland State Park Foundation, Inc., the Maryland Department of Natural Resources, and the Maryland State Archives. The lithograph and illustrations may be reproduced for classroom use. The watercolor sketchbook from which the accompanying illustrations were selected contains 24 color sketches reproduced in a high-quality paperback facsimile publication entitled Sketches from Prison. It is available for \$13.00, check payable to the Maryland State Archives, 350 Rowe Boulevard, Annapolis, MD, 21401. Edwin Beitzell's Point Lookout Prison Camp for Confederates reproduces another version of the lithograph, complete with an enlarged location key. The latter book, although it contains some inaccuracies in citations and is crudely presented, contains valuable information about all aspects of Point Lookout and makes extensive use of primary sources. It includes a transcript of Private Jones's and many other

memoirs. Richly illustrated, it contains 45 black-and-white reproductions of another version of the watercolor sketchbook. It is available for \$33.50, check payable to the St. Mary's County Historical Society, P.O. Box 212, Leonardtown, MD, 20650.



A black guard threatens a prisoner who gets too close to the walls of his confines.

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On the cover: The combined armies of Grant and Sherman, numbering over two hundred thousand men, triumphantly march down Pennsylvania Avenue on 23 May 1865. The scene suggests not only the military significance of the Civil War, but also the important role it played among civilians, who were said on this day to have greeted returning soldiers with "grateful shouts." Sketch by W.T. Crane courtesy of *Leslie's Illustrated*.

Julia,

I came across this Point Lookout reference the other day. Thought it might be of use.

NAGPRA has been keeping me busy, as most of everyone else, I'm finding. I'm glad my principal research area is historic skeletal biology and forensic anthropology.

Stay well,

Paul Sledzik

CIVIL WAR MEDICINE

Care & Comfort of the Wounded

ROBERT E. DENNEY

1995



STERLING PUBLISHING CO., INC.
NEW YORK

Yankees. I am sorry they did not handle him rather roughly and cure him of his wonderfully good opinion of them....

I now feel quite sure that I shall be able to get home before much longer, but don't look for me until you see me walk in.

October 31 (Saturday)

Sherman's march to Chattanooga across northern Alabama was a nightmare. Mrs. Bickerdyke got little rest at the end of a dreary day's march, being constantly asked by the weary soldiers for help fixing their blistered feet. The army-issued shoes were falling apart in the rain and the damage to their feet was enormous.

November 1 (Sunday)

Skirmishing occurred in the vicinity of Eastport and Fayetteville, Tenn., on the outskirts of Grant's lines at Chattanooga. Few casualties were reported.

November 2 (Monday)

Before leaving the area of Murfreesboro, Tenn., the Union Army had created a hospital train by fitting two ordinary passenger railway cars with bunks, two cars without bunks, and one car for cooking. To lessen the jolting motion of the cars, additional cars had been fitted elsewhere with berths suspended from elastic rings.

About the middle of September, the latter cars were placed into service, moving the wounded and sick from the depot hospitals to Nashville and points north. This train was capable of moving sixty patients in reasonable comfort and was used extensively until the depot hospitals were largely emptied.

November 5 (Thursday)

In Chattanooga, Grant was inspecting the lines and waiting patiently for Sherman to arrive. Sherman wasn't making too much progress with his long wagon trains, which contained tons of rations for Grant's army. These rations, loaded before the "Cracker Line" had been opened, were somewhat redundant now, but Sherman couldn't just leave them in the wilderness. It took him 13 days to cover about 115 "air" miles—probably about 170 road miles.

November 6 (Friday)

At Point Lookout, Md., scurvy reared its ugly head. Brig. Gen. Gilman Marston, commanding the Union prison, wrote Col. William Hoffman, Federal Commissary-General of Prisoners:

The surgeon in charge of the Rebel camp informs me that most of the prisoners are afflicted with scurvy, and he advises that vegetables be furnished them. I have thought it might be advisable to purchase a schooner load of beets, carrots, turnips, cabbages, and the like and pay for the same out of the fund arising from the savings from food rations. It would probably not add to the actual cost of their food....

Considering the poor diet already furnished the prisoners—usually the same as the Union troops, which was bad enough—it isn't surprising that scurvy wasn't even more prevalent.

November 9 (Monday)

Col. William Hoffman, Federal Commissary-General of Prisoners, replied to Brig. Gen. Marston's request of November 6 concerning the purchase of vegetables for the Confederate prisoners to prevent scurvy. Col. Hoffman agreed that the vegetables were necessary, and that their purchase should be out of the "prisoners fund." Hoffman then expounded the view of a parsimonious bureaucrat by stating: "... *By the use of vegetables the savings of other parts of the ration will be increased, so that the cost will be to some extent refunded...*" Hoffman further says that "*As the prisoners are bountifully supplied with provisions, I do not think it well to permit them to receive boxes of eatables from their friends...*" [Italics added.]

There were probably 10,000 prisoners at Point Lookout who would contest Hoffman's concept of "bountiful" when it applied to their rations.

November 10 (Tuesday)

Mr. W. F. Swalm, a representative of the U.S. Sanitary Commission, today reported on his visit and inspection of the Hammond General Hospital at Point Lookout, Md.:

Visited and inspected the different wards, kitchen, dining rooms of the Hammond General Hospital, which is now mostly occupied by the Rebel sick, and in charge of Anthony Heger, surgeon, U.S. Army, who was very kind and courteous towards me and

was glad that I had come to make an official visit to the hospital. He, in company with the officer of the day (Dr. Bidlack), visited with me every ward, kitchen,... &c., and showed me every attention in their power.

The hospital is arranged like the spokes of a wheel and has fifteen wards, together with one building used as the executive department, and containing also the sleeping apartments of the different surgeons, dispensary, linen room, &c. The capacity of the hospital, allowing 900 cubic feet per bed, is 1050 beds, or 70 beds to each ward. Including the convalescent ward and the wards for erysipelas and hospital gangrene, there are about 1400 beds. Ventilation good, high ceilings and plenty of good sea air. Number of patients at present in the hospital is 1277; of these 493 are Union men and 784 Rebels. The Union soldiers are all nearly convalescent, while the prevailing disease among the Rebels is chronic diarrhea. Of the 1208 sick in the hospital last week there were 46 deaths or 38.07 percent., and the mortality slightly on the increase. They receive on the average thirty per day from the hospital within the encampment and in the very worst condition. Some are moribund when they arrive at this hospital. At the postmortem examinations the doctor said nearly all of those who died of diarrhea had pneumonia. Did not show itself during life, probably from the extreme weak condition of the patient. From the 1st of March to the end of September, there were only twenty-eight deaths. Union soldiers then occupied the hospitals, and the sick report on the last day of July was 1192. The highest number was 1330, but the average for the six months was 1100. Diseases, typhoid fever, diarrhea, and typhoid pneumonia.

The wards were in very good condition, but there was a vast difference in the cleanliness of those occupied by our men; no spitting on the floor or lounging on the beds with clothes on, as was seen among the Rebels. Could do nothing with them; impose no punishment, for they were too weak. Every attention was paid them, and all possible care to keep the wards and bedding as clean as possible. In the half- and low-diet kitchen found the trays all ready to convey the food to the sick. The Rebels received the same as our own men; no distinction whatever. Potatoes, rice, cabbage, sweet milk, soft bread and butter, and farina of cornstarch being prepared in this kitchen; had female cooks. The full-

diet kitchen was by the side of the dining room, with everything complete, ovens, boilers, &c. The dining room, capable of seating 1000 persons, was in splendid condition, with tables, floor, &c., in good order.

I shall not enter into the detail of these various apartments, but will speak of the rations, which to us now is of more interest. It was my fortune to enter the dining room as dinner was being placed upon the table, and found about 6 ounces of fresh beef, boiled; 3 potatoes, 2 thick slices of bread, butter, 1 pint of soup with vegetables, and the condiments of pepper, salt, vinegar, and mustard; and to this the Rebels sat down at the same time and in the same room with our own men. What could they wish more? And if there was any complaint at all it ought to come from us, that they received too much and are entirely too well treated.

Full diet: Breakfast—bread, 8 ounces; butter, 1 ounce; Indian meal, boiled, 2 ounces; molasses, 0.32 of a gill. Dinner—beef soup and vegetables, 1 pint; meat, 10 ounces; sweet potatoes, 7 ounces; bread, 4 ounces. Supper—coffee, 1 pint; bread, 5 ounces; cheese, 2 ounces; butter, 1 ounce. The diet is changed every day, when they also receive cabbage, tomatoes, macaroni, and on Sunday have both Irish and sweet potatoes, puddings, &c. The bread ration was formerly six ounces, but the doctor has cut it down one ounce breakfast and supper and two ounces dinner.

Bath, laundry, and engine rooms complete and in good order. The linen room and liquors are in the executive building and under the charge of Sisters of Charity; well supplied with everything.

In the afternoon visited the smallpox hospital, and [it] is about a quarter of a mile north of the encampment, among the pine bushes, under the charge of Dr. W. Broadbent, acting assistant surgeon. This hospital was opened two weeks ago, and up to today have received therein 133 patients, during which time thirty-three deaths have occurred. The sick are in wedge tents, three to a tent, lying on straw on the ground, with a blanket and a half to a man. Their ration is the same, and bean soup is given every day; to those not allowed it, coffee in its stead. The men are much more comfortable here than in the encampment, and those who are in attendance do not want to go back. I should also state that they occasionally get soft bread. No complaints at all; were getting along as well as they could expect.

Medicines very short; no cathartics at all. In connection with the smallpox, the majority have scurvy and scabies, and some are in horrid condition.

In the remarks that I have made concerning the prisoners, it is evident that with the facilities they now possess they could be made 10 percent more comfortable if they had someone to command them. That they are suffering from want of clothing and covering is true. Of their treatment they do not complain; their ration they do not deem quite sufficient; but of their filthy condition and habits more is attributable to their indolence and laziness, and they have the facilities at their disposal to correct this and they ought to be made to do it....

November 11 (Wednesday)

The Army of the Potomac, after much marching and many hardships, finally came to rest for the winter near Mountain Run, Va., at the foot of the Blue Ridge Mountains.

Perry, John G., Asst. Surg., USV, 20th Mass. Vols., near Mountain Run, Va.:

On the 9th we had quite a little snowstorm, and yesterday, when on the march, the snow-covered "Blue Hills" towered above us, their icy cliffs illuminated by the sun's rays into every enchanting color. We have ice now every night, and last night it froze nearly two inches thick.

I have been working hard today, pitching my tent upon a log foundation. It will be warmer, and will allow me to sit up. Tomorrow I shall build an underground fireplace, for the wind blows so hard here in the winter that it is impossible to keep warm by an outside fire, for while your front is warming your back is freezing, and if the fire is very near the tent, the smoke blows in and smothers you. My eyes are now almost put out by the smoke; my hands are covered with pitch from handling pine logs; my feet are soaking wet; and I am cross....

November 12 (Thursday)

At Chattanooga, Grant waited for Sherman to arrive. Grant's current problem was one of morale. The Army of the Cumberland he'd inherited was, he felt, badly demoralized by its defeat at Chickamauga. Grant also felt that Hooker's two corps from the

Army of the Potomac would perform poorly because they had never won a battle. What he wanted was a body of troops that was accustomed to winning and a commander to match them: Sherman and his Fifteenth Corps. Sherman was still two days away.

November 13 (Friday)

Mr. Frederick N. Knapp, Associate Secretary of the U.S. Sanitary Commission in Washington, today completed his inspection report on Point Lookout, Md., which was forwarded to Col. William Hoffman, Federal Commissary-General of Prisoners. The report, covering the survey of the prison hospital and camp, paints a rather grim picture of the life of the Confederate prisoners held there:

The accommodations here were much better than I expected to find them and much more comfortable, yet they had by no means the best of care. The hospital was situated in the southern part of the encampment and was composed of eighteen hospital tents, complete, arranged two together, end to end, and placed in two rows, a broad street intervening, with the cook and dining tent on the eastern end and facing the street. In these tents there were 100 patients, and all were lying on mattresses with at least one blanket for covering. Eight of their own men were detailed to take care of them, and although they were enlisted men, yet six were graduates from some medical school and the other two had been students. Four were graduates from the University of the City of New York; one of the school at New Orleans; one from the eclectic school, Cincinnati, and the other two were students in the University of Pennsylvania, seceders. Still, little or no attention did they give to their sick comrades, and, except in giving the necessary food and medicine, they scarcely even visited them. There is either a lack of sympathy or else indolence enters largely into their composition, and I am inclined to believe it is the latter, for, with the accommodations at their command, with good beds and shelter for the sick, if they had one particle of pride they could render them much more comfortable, especially as regards cleanliness. As it is, they are in a filthy condition; faces and hands apparently strangers to soap and water and hair seemingly uncombed for weeks.

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From Regina Combs Hammett 1977,
History of St. Mary's County, Maryland

(Have you
 looked up the
 Hospital in
 this?)

James S. Jarboe	March 24, 1898
Francis E. G. Crane	July 23, 1908 (failed to qualify)
John F. Forestell	December 15, 1908
M. Agnes McCarthy	June 10, 1911
M. Agnes Pembroke	October 26, 1912 (retired Jan. 31, 1943)
Mrs. Mary H. Roach (acting)	February 4, 1943
Miss Alma M. Yeatman (acting)	May 3, 1943
Miss Alma M. Yeatman (confirmed)	December 10, 1943
Mrs. Alma M. Gatton (name changed by marriage)	November 12, 1951
Mrs. Mary E. Greenwell (acting)	March 5, 1954
Mrs. Wilma G. Raley	May 26, 1955

The mailman's final stop in "Lowentown" is Scotland Post Office, 2 1/2 miles south of Ridge. The Scotland Post Office was established in 1882, but the place name predates the post office by many years. Records show a tract of land named "Scotland" willed to William Jones by Solomon Jones in 1710.⁷³ Frederick McCoy, one of the area's best-informed historians, contends that the name originated with a group of Scotsmen who had fought under "Bonnie Prince Charlie" in his 1745 unsuccessful rebellion against England. The captured Scottish soldiers were loaded on a ship and brought to Maryland to be sold as indentured servants. Thus exiled from their native Scotland, they abandoned their Scottish surnames to insure their future safety. It was those Scotsmen who named a small part of St. Mary's County where they found refuge "Scotland."

Scotland is the surviving post office in an area where three other post offices once existed: Point Lookout, Scotland Beach, and Cornfield Harbor. Point Lookout, now a state park, has undergone a long evolution of uses: the site of Indian raids in colonial days, the site of raids by the British during the Revolutionary War, an observation post during the War of 1812, the site of a lighthouse since 1830, a resort area during the 1850's, a Union hospital and prison camp during the Civil War, a resort area during the 1880's and 1890's, and intermittently a summer home -- hotel site -- and permanent homes site during the twentieth century.

The Point Lookout Post Office, first established in 1860, was discontinued in 1943. The list of postmasters follows:

<u>Postmaster</u>	<u>Date of Appointment</u>
Logan O. Smith	July 11, 1860
Discontinued July 10, 1862. Re-established July 24, 1862.	
Joseph S. Allen	July 24, 1862
Lloyd Knight	September 4, 1862
Discontinued April 2, 1866. Re-established January 3, 1870.	
Mrs. Sarah J. Gilmore	January 3, 1870
Discontinued January 3, 1871. Re-established June 2, 1871.	
Henry C. Clarke	June 2, 1871
Robert Hewlet	January 18, 1882
Mail to Cornfield September 3, 1883	
Point Lookout (Late "Cornfield")	
— Venie Yeatman	October 19, 1889
— Cora Yeatman	March 30, 1895
Hattie E. Adams	August 13, 1900 (Rescinded Sept. 18, 1900)
Richard E. Langley	September 21, 1900

related to
 lighthouse
 keeper

Papers to Scotland effective Feb., 1901. This order rescinded Feb. 9, 1901.
 Amy M. Greenwell February 12, 1901
 Alice C. Yeatman - *related to keeper* February 7, 1902.
 Mrs. Olive E. Willis - " " " January 2, 1924 (deceased Jan. 10,
 1934)
 Mrs. Carlotta Richardson (acting) February 14, 1934
 Mrs. Carlotta Richardson (confirmed) May 7, 1934
 Discontinued effective March 15, 1943. Mail to Scotland.

Scotland Beach is located on Tanner's Creek and Chesapeake Bay. In 1976 the community consists of a cluster of cottages and a restaurant-tavern called Duffy's for its owner, Harold Duffy, an avid collector of Civil War bullets and paraphernalia. Just north along the Bay front is a subdivision called Rodo Beach.

Scotland Beach has lost hundreds of feet of its Bay shore to erosion. A concrete culvert, the only surviving landmark of a road which used to run along the waterfront to Point Lookout, can be seen approximately 100 feet offshore. In years past Scotland Beach was the site of a hotel which did a thriving business during the early decades of the 20th century. The September 5, 1924, issue of the St. Mary's Beacon reported that Scotland Beach Hotel, T. A. Ridgell, proprietor, "was crowded with over 100 weekend guests registered." Guests had the option of traveling to Scotland Beach via the steamboat or by bus from Leonardtown. During the 1920's Mr. Ridgell ran a bus service between Scotland and Leonardtown, making two trips a day timed to correspond with the schedule of the Tidewater Bus Line which terminated its run at Leonardtown. This service was not only a great convenience for his hotel and cottage guests, but provided a reasonably-priced and convenient transportation system for residents along Route 5 between Scotland and Leonardtown.

Scotland Beach had a post office during that period of its history. It was established in 1924 with Thomas A. Ridgell as the first postmaster and continued until 1943. The list of postmasters follows:

<u>Postmaster</u>	<u>Date of Appointment</u>
Thomas A. Ridgell	May 20, 1924
Edward W. Mollohan	May 25, 1928
(Made summertime office open from June 15 to September 15.)	
Percy Yeatman (acting)	April 28, 1932
Percy Yeatman (confirmed)	May 12, 1932
Miss Alma M. Yeatman	September 18, 1940
Mrs. Mae H. Morgan (acting)	May 3, 1943
Discontinued effective June 30, 1945. Mail to Scotland.	

The third obsolete post office in the area was Cornfield, established in 1883. The name was changed to Cornfield Harbor in 1909, and the post office continued intermittently until 1932. This post office was located on the Potomac River shore about three miles north of Point Lookout. Col. Wailes operated a steam saw, grist and planing mill, and a brickyard there in the 1880's.⁷⁴ In addition to being a regular stopping place for the Norfolk and Washington steamboats, the wharf at Cornfield Harbor was visited at regular intervals by the mail boats Excelsior and Leary.⁷⁵

Cornfield Harbor continued to be an important center during the early decades of the twentieth century. The Cornfield Harbor Packing Company was incorporated in 1920.⁷⁶ A large pavilion which had served as a social center was torn down in